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Elements of architectural planning of new physical facilities for the mentally retarded detailed include programing and writing the project program. Design concepts are considered, and the following are specified: types of physical facilities with sample floor plans: elements of physical facilities, such as staff offices, activity areas, living units, and ancillary areas: basic planning consideration; and construction costs. A chart treats four levels of retardation; tables suggest areas for various facilities and recommend lighting levels. A bibliography cites 23 items. (LE)

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HOSPITAL AND MEDICAL FACILITIES SERIES
Facilities For The Mentally Retarded
design-
equipment

Design of Facilities for The Mentally Retarded

- Diagnosis and Evaluation
- Education and Training
- Living Units

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Design of Facilities for The Mentally Retarded

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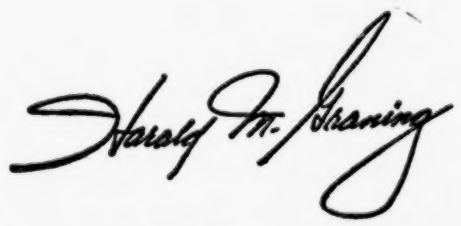
foreword

Every child has the right to expect the greatest possible protection against the occurrence of a preventable handicap before, during, and after his birth. Every child also, regardless of the nature of his handicap, has the right to develop to the maximum of his abilities in spite of his disablement.

Congress passed two legislative measures in 1963 relating to the planning and construction of facilities for the mentally retarded. The Maternal and Child Health Centers Construction Act of 1963 (Public Law 88–156) authorized funds for the development of comprehensive State plans to combat mental retardation. The Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1963 (Public Law 88–164), among other things, authorized funds for the construction of clinical facilities for research on the problem of mental retardation and facilities for the diagnosis, treatment, and care of the retarded.

Concepts expressed herein have come about through the active participation of the 11 individuals listed on the acknowledgment page and as the result of many site visits to facilities for the mentally retarded by Division architects. The publication itself, however, was developed by the following staff of the Division: Project Director A. Rorke Vanston and Ashot P. Mnatzakanian, architects, and Saidee C. Byrne, technical writer. Sketches were drawn by Richard A. Pranulis, architect.



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INTRODUCTION

As individuals and as members of our social structure, the mentally retarded are entitled to all the privileges, dignities, and respect we expect for ourselves and others in our society. Authorities in the field also agree that the retarded, because of their handicaps, are properly entitled to a sympathetic understanding and a deep concern for their welfare and betterment. The design of physical facilities for the mentally retarded, consistent with this basic concept, should challenge architects to create the proper environment.

Guidelines for designing and constructing facilities for the mentally retarded are limited. The purpose of this publication is to provide some measure of guidance in the architectural planning of new physical facilities that will conform to current concepts and relieve the critical deficit in the number and quality of existing facilities for the mentally retarded.

No attempt will be made here to enlighten architects, sponsors of projects, and others who may be interested in the broad subject of mental retardation. However, mental retardation may be described as a condition of inadequately developed intelligence which impairs the ability to learn and to adapt to the demands of society. Philosophy, concepts, medical findings, and other specialized information are more appropriately left to the wide range of available documents on those aspects. Additional readings in these areas would certainly assist those with primary interest in the design and construction of physical facilities to obtain a better understanding of the mentally retarded and the special problems of their care, treatment, education, training, and management.

Concerted action on all aspects of the program for national action to combat mental retardation is extremely important, but much of the effectiveness of the program depends upon the adequacy of physical facilities. A basic knowledge of the processes involved in diagnosis and evaluation, education and training, and care of retardates is essential to effective planning of appropriate facilities.

Public Health Service Publication No. 1192, *Mental Retardation Guidelines for State Interagency Planning*,* outlines the considerations and procedures for planning action to combat mental retardation in accordance with Title XVII of Public Law 88–156. *Planning of Facilities for the Mentally Retarded*, Public Health Service Publication No. 1181–B–1,† delineates the planning procedures and considerations for providing facilities for the mentally retarded in accordance with Title I, Part C, of Public Law 88–164. Both publications contain information that will be helpful to architects designing facilities for the mentally retarded. In addition, architects should refer to the report of the President's Panel on Mental Retardation for recommendations in this field.

This publication deals with facilities providing direct services such as diagnosis and evaluation for the mentally retarded. These include day facilities and those having living units (residential facilities) which provide 24-hour services. Facilities with major emphasis on basic research and the training of professional personnel on the collegiate level are not included. Certain of the features discussed may be applicable, however, when such a facility involves aspects of direct service to the mentally retarded.

Facilities offering less than 24-hour services for the mentally retarded are critically lacking, and strong emphasis on new construction in this category will be necessary to relieve the deficit. Many existing day facilities are carrying on their activities under conditions and in surroundings that leave much to be desired in meeting their program requirements. In such cases, improvements or replacements should be considered.

Although Public Law 88–164 includes provisions not only for new construction but also for expansion, remodeling, and alteration of existing facilities, conversion of buildings initially designed for a different function seldom

*See item 21, Bibliography, p. 46.
†See item 22, Bibliography, p. 46.

proves advisable from an economical, functional, or structural standpoint. Thus, a detailed feasibility survey of such buildings is necessary to determine whether conversion is advisable. For example, the building should be located where it will best serve the group of retardates for whom it is intended, and the size of the site should allow for expansion. The architectural arrangement should be such that conversion will permit proper functional relationships, adequate space, and efficient operation. The building must be structurally sound and must comply with fire safety codes. Mechanical and electrical systems should be in good repair, should comply with all applicable codes, and should permit feasible expansion to carry the anticipated load. The construction cost of converting the building to a facility for the mentally retarded and the operating costs after conversion should be carefully assessed in comparison with the costs of a new facility. The advantages of a new facility designed to meet the needs of the specific program and reflect current concepts should not be minimized.

Guidelines for Hospital Modernization, Public Health Service Publication No. 930–D–20,* provides information that will be helpful in deciding whether an existing building can be modernized and converted to provide facilities for the mentally retarded.

*See item 20, Bibliography, p. 46.

PROGRAMING

Effective programing and planning to combat mental retardation requires a basic understanding and an awareness of the broad scope and nature of the problem. Precise figures of the number of retardates involved have not been fully documented. Most authorities agree that a national average of approximately 3 percent of the population would be classified as mentally retarded to some degree and that about 100,000 to 200,000 of the babies born annually will join this group. The following table shows an approximate estimate of retardation by age and degree related to the national population. Classification by other authorities may vary.

A further breakdown by chronological age and mental level is difficult to project by any available estimate and would be even less precise than the broad categories shown in the table. However, the chart on the following page may provide some understanding of the various *levels of mental retardation* and capabilities in the various age groups.

The prevalence of mental retardation will vary widely from community to community. A comprehensive areawide program to combat mental retardation should be developed through the cooperation of all agencies concerned with the many aspects of the problem. Such a program is the on-going responsibility of an inter-

ESTIMATES OF RETARDATION BY AGE AND DEGREE—1963*

	All ages	Under 20 years	20 years and above
General population (1963)	189 million	73 million	116 million.
3% of general population	5.7 million	2.2 million	3.5 million.
Retarded:			
Profound (IQ 20) about 1½%	85 thousand	50 thousand	35 thousand.
Severe (IQ 20–35) about 3½%	200 thousand	100 thousand	100 thousand.
Moderate (IQ 36–52) about 6%	350 thousand	150 thousand	200 thousand.
Mild (IQ 53+) about 89%	5 million plus	2 million plus	3 million (1 million plus needing help).†
Totals	5.6 million	2.3 million	3.3 million.

*Table prepared by National Association for Retarded Children.

†Represents those who have not achieved a satisfactory degree of independence.

DEVELOPMENTAL CHARACTERISTICS, POTENTIAL FOR EDUCATION AND TRAINING, AND SOCIAL AND VOCATIONAL ADEQUACY AT FOUR LEVELS OF RETARDATION

Level	Preschool age 0–5, maturation and development	School age 6–21, training and education	Adult 21 and over, social and vocational adequacy
Profound	Gross retardation; minimal capacity for functioning in sensorimotor areas; needs nursing care.	Obvious delays in all areas of development; shows basic emotional responses; may respond to skillful training in use of legs, hands, and jaws; needs close supervision.	May walk, need nursing care, have primitive speech; usually benefits from regular physical activity; incapable of self-maintenance.
Severe	Marked delay in motor development; little or no communication skill; may respond to training in elementary self-help, e.g., self-feeding.	Usually walks barring specific disability; has some understanding of speech and some response; can profit from systematic habit training.	Can conform to daily routines and repetitive activities; needs continuing direction and supervision in protective environment.
Moderate	Noticeable delays in motor development, especially in speech; responds to training in various self-help activities.	Can learn simple communication, elementary health and safety habits, and simple manual skills; does not progress in functional reading or arithmetic.	Can perform simple tasks under sheltered conditions; participates in simple recreation; travels alone in familiar places; usually incapable of self-maintenance.
Mild	Often not noticed as retarded by casual observer, but is slower to walk, feed self, and talk than most children.	Can acquire practical skills and useful reading and arithmetic to a 3d to 6th grade level with special education. Can be guided toward social conformity.	Can usually achieve social and vocational skills adequate to self-maintenance; may need occasional guidance and support when under unusual social or economic stress.

Source: Mental Retardation: A National Plan for a National Problem (Chart Book), p. 15, August 1963. Published for the President's Panel on Mental Retardation by the U.S. Department of Health, Education, and Welfare.

agency group or committee and requires a careful assessment of the scope of the problem locally, what action is needed, and the resources available. By its broad representation this group can coordinate all State and local activities in the various aspects of prevention, treatment, and amelioration and recommend steps leading to comprehensive community action.

The State construction program points out the various localities and types of facilities required to meet present and anticipated needs. When Federal funds for construction are requested, the project must be reflected in the State plan developed by the State agency designated to administer such funds.

The planning of specific services and facilities for the mentally retarded should consider both the comprehensive areawide program and the State construction program. The area, the type and number of retardates to be served, the goals to be achieved, and the availability of existing community services are some of the factors to be considered.

In programing specific services and facilities for the mentally retarded and in planning new construction, some basic considerations are:

1. Services for the mentally retarded, whether in one facility or in many throughout the community, should provide retardates with the wide range of life experiences essential to their optimum development.

2. The most favorable environment for the growth and development of most of the mentally retarded is a normal living pattern with the family or in other residential facilities in the community.

3. The mentally retarded can and should, to the fullest extent possible, use appropriate services and facilities that are already available to any other person in the community.

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4. Services for the mentally retarded should be planned for specific local needs and should be brought as closely as possible to the locality where the need exists. Ideally, all facilities should be located to permit close integration and interchange with other related community services and activities.

5. Basic services such as family counseling, social services, day care, home nursing, training and special education, vocational guidance and sheltered employment, individual and group foster care, religious guidance, recreational opportunities, and medical and dental care should be available locally for all retardates.

6. The traditional institutional character of some large residential facilities should be avoided in constructing new facilities. New residential facilities, if needed, should be planned for no more than 500 beds; for certain specific purposes smaller facilities may be advantageous. Existing residential facilities, many of which are much larger than 500 beds, should modify their structures where possible to provide small living units for close personal contacts and individual care. The nature of such modifications would be determined by the particular category of the resident and the pattern of care.

7. Research, both basic and clinical, is important in understanding the mentally retarded and in developing treatment for them. Some research will probably be carried out in all facilities for the mentally retarded. However, where extensive research is anticipated, special facilities may be required.

8. To meet the present and anticipated deficit in trained professional and nonprofessional personnel to staff facilities for the mentally retarded, training programs should be given serious consideration.

WRITING THE PROJECT PROGRAM

The authorities who will administer the facility are directly responsible for developing the functional program in depth and establishing both their short- and long-term objectives in accordance with the comprehensive planning on a statewide or regional basis. After the functional program and objectives are established the specific requirements of a physical plant best suited to obtain these objectives must be carefully determined and clearly stated in *writing* for the guidance of the architect. A building committee is usually appointed for this purpose, and the architect should be engaged early enough to participate in committee discussions. Visits to existing facilities by both the committee and architect will be helpful in formulating ideas and acquiring a better knowledge of the problem.

Some considerations that may be useful as guides in preparing the *written program* are:

1. If any services are to be supplied by already existing facilities in the community, the relationship should be clearly explained in the written program.

2. Specific information should be given about the services to be carried out in the facility with an explanation of philosophy and purpose.

3. If facilities are being planned to serve a large scattered population on a county or regional basis, the program should clearly state the area involved and which of the many services will be included. A facility to serve such an area may combine all or most of the elements required for diagnosis and evaluation, treatment, education and training, sheltered employment, and 24-hour care.

4. The functional relationship of the various services should be outlined because the effectiveness of the habilitation program depends largely on the continuity and integration of all services.

5. The number, characteristics, and special needs of the retardates to be served must be clearly described. This will permit the designer to visualize their needs and give careful consideration to their safety and well-being in all their pursuits and activities.

6. The personnel structure to be used in the facility should be outlined with long-range staffing in mind. Special features and facilities, in-

cluding equipment, that will be necessary for the staff to effectively conduct the service programs should be described. If personnel training programs are anticipated, the facilities these programs will require should be indicated.

7. If research programs in the medical or behavioral sciences are contemplated, the specialized facilities required for these programs should be carefully delineated.

8. Space requirements, capacities, workloads, finishes, equipment, utilities, and similar data should be included.

9. Expansion or changes to meet possible future needs should be considered and some suggestions made as to what might be involved.

Too much emphasis cannot be placed on the importance of a carefully delineated and comprehensive *written program* prepared by those who will actively staff the facility. The architect can then translate the written program into an *architectural program* for review by key personnel of the staff before proceeding with preliminary sketches. This will guide him in developing a functional design and more nearly assure its conformance with program requirements.

DESIGN CONCEPTS

MASTER PLAN

A master plan for the project should be developed, particularly if future expansion is envisioned, whether it be for enlargement or alteration of the original structure or the addition of other building units. If immediate and long-range objectives are expressed in a master plan, it will provide a pattern for an orderly stage-by-stage growth and give direction to a functional development.

SITE DEVELOPMENT

In the selection of a site, the potential for an interesting and effective development should be recognized, and natural site features should be used to enhance the setting. The location should be convenient to the population it serves and readily accessible to community facilities and services that may be an integral part of the mental retardation service program. Easy access by public transportation will facilitate unaccompanied travel by retardates. It will also encourage visits by families and use of the facility for training and other purposes by members of the community. The architect should be a member of the site evaluation team.

ARCHITECTURAL CHARACTER

The architectural design of facilities for the mentally retarded should create an environment appropriate to their special needs. The functional requirements are often complex and may not always be compatible with the creation of an informal atmosphere of warmth and intimacy that is so desirable in these facilities. However, every effort should be made to eliminate any suggestion of an institutional character in the physical setting.

In general, single-story buildings are preferable for ease of access and interior circulation and present a more intimate environment. Buildings as modest in size as function will permit; avoidance of rigid uniformity in planning; and the skilled use of form, materials, and color will contribute to an informal atmosphere. This informality may be further enhanced by incorporating patios or landscaped areas in relation to the building. Attractive outdoor spaces for supervised play should also be provided. Architecturally, the buildings should recognize community standards and conform to applicable regulations, but the importance of an aesthetic appearance cannot be overemphasized. Economical and efficient operation and maintenance of the facility is, of course, an important consideration in the total design.

TYPES OF PHYSICAL FACILITIES

Four broad types of physical facilities for the mentally retarded may be described basically as those providing (1) diagnostic and evaluation services; (2) any or all elements of treatment, education, training, personal care, and sheltered workshop services for less than 24 hours; (3) services listed in items 1 and 2 and residential care in living units for a 24-hour period; and (4) group home or housing services.

The pattern of care on the State and local level and the project program will determine the scope and nature of the services that must be provided and the type, size, and other characteristics of the physical facilities.

DIAGNOSTIC AND EVALUATION FACILITIES

The diagnostic and evaluation facility should be planned for coordinated medical, psychological, and social services; public health nursing; speech and hearing evaluation; and educational or vocational evaluation and counseling. If some of these services are available elsewhere in the community, however, they need not be duplicated. Major medical and educational centers, where accessible, can make a significant contribution to the effectiveness of the diagnostic and evaluation process because of their wide range of competencies and resources.

When some of the services are performed through outside community resources, the clinical director will determine and arrange for appropriate referrals and consultations. The evaluation team, however, will hold its case conferences in the clinical facility to analyze and discuss the various diagnoses, assessments, and reports which relate to the evaluation of the retardate. The range of services provided within the facility may vary considerably and when many of these are performed elsewhere the size of the facility may be somewhat reduced.

If, on the other hand, only part or few of the diagnostic and evaluation services are available elsewhere in the community, the diagnostic and evaluation facility may include most of the services required for a comprehensive assessment and perhaps some treatment or therapy for the mentally retarded. The services that would be provided by this type facility might include a full range of necessary disciplines and specialties so that referrals to other sources of needed services would be minimized. Such a facility can function effectively as an independent unit or in a variety of settings including a day facility, a residential facility, a university, a medical school, or a large medical center.

Basic Services in Diagnosis and Evaluation

Although a typical facility for diagnosis and evaluation cannot be precisely delineated, three basic services are essential and must be provided. *Medical screening*, *psychological investigation*, and a *case history by the social worker* are the major elements in the diagnostic and evaluation process. These services are required in some degree for all retardates regardless of the degree of retardation or the extent of associated handicaps. Basic data and information, which are acquired in this initial phase, are essential in determining a specific course of action. Further diagnosis by certain specialties and particular types of therapy may be necessary to adequately determine the most appropriate and effective program of education and training or other habilitative services for the best interest of the retardate.

Facilities in the diagnostic and evaluation center for the basic services would require space for:

- Medical examination.
- Psychological investigation.
- Social work interviews.
- Public health nursing.
- Speech and hearing examination.
- Educational and vocational evaluation.
- Staff conferences and group counseling.

Offices for the clinical director and the various disciplines involved, either as full-time staff members or as part-time consultants, will also be required as well as the necessary ancillary facilities. When inservice training, which is an important activity, is included, special provisions may be required.

Specialized Services

Some specialized services necessary for a comprehensive diagnosis and evaluation of the mentally retarded may be available from outside practitioners or in already existing medical facilities in the community and would not be required in the diagnostic and evaluation facility. However, if the diagnostic and evaluation facility must provide for any one or more of these specialized services, the space and special equipment required must be incorporated in the design. Because of their highly technical nature, it may not be practical in most instances to include electroencephalographic and radiology facilities in a diagnostic and evaluation facility. Facilities required for some of the major specialized services are:

- Dental facilities.
- Ophthalmology facilities.
- Electroencephalographic facilities.
- Clinical laboratory facilities.
- Radiology facilities.

The number and types of retardates may vary in each community; therefore, facilities must be designed to meet the needs of the particular community. The architect should adapt to a proposed community facility only those spaces required by the community program.

Figure 1 shows a schematic of a hypothetical diagnostic and evaluation center for an area with 150,000 population. Table 1 lists approximate areas for such a facility and the section on Elements of Physical Facilities gives a general description of the spaces that may be required.

DAY FACILITIES (LESS THAN 24-HOUR CARE)

The day facility, whatever form it may assume in reflecting the needs of a specific community, is a vital element in the total effort to habilitate the mentally retarded. The variety of services, following diagnosis and evaluation, that may be offered by facilities of this type are essential to the continuum of care and treatment necessary to carry out a comprehensive program.

These services may include outpatient medical care and treatment, family counseling and home care, nursery and preschool care, education and training, recreational opportunities, vocational evaluation and training, and sheltered workshop services. With these services available, the majority of the retardates could benefit from a more favorable environment in familiar surroundings at home or in the community. Some facilities that might provide these services in the community at large are child welfare clinics, outpatient clinics in public health centers or hospitals, speech and hearing clinics, public or private schools, community recreation centers, swimming pools, teen clubs, activity programs in churches, rehabilitation and vocational guidance centers, and sheltered workshops serving all types of handicapped persons. Basically, day facilities should be programed and planned to provide only those services for the mentally retarded which are not already existing or available through other community resources. Specialized day facilities, however, will be required for those retardates who, because of associated handicaps or individual conditions, may not be capable of adjusting to programs or the use of facilities serving other groups. Through a temporary period of special training, many of these can more readily adjust to the use of community facilities.

A nursery for a small group of preschool-age children or some other special category might best serve one particular community's need. However, a large facility which would accommodate an extensive program of appropriate services for a wide range of mental levels and chronological ages might be indicated in meeting the needs of another community.

The day facilities described below under

Table 1. APPROXIMATE AREAS FOR A DIAGNOSTIC AND EVALUATION CENTER FOR THE MENTALLY RETARDED

(Based on annual caseload of 500 retardates—150 new cases)

	Approximate area (square feet)
Entry	80
Lobby and waiting	180
Childrens' waiting	140
Parents' waiting	80
Director	150
Secretary	100
Secretarial pool	180
Records and files	90
Medical consultants' office	120
Public health nurse	120
Psychologist	140
Testing	60
Observation-playroom	150
Storage (2)	60
Social workers' offices (2)	240
Consultants' office	120
Office (unassigned)	120
Speech and hearing	120
Testing	60
Medical examining rooms (2)	180
Waiting (2)	60
Laboratory	60
Toilet (specimen)	30
Utility	50
Conference-library	300
Trainees' office	140
Public and private toilets (2)	230
Janitor	25
Snacks	25
General storage	90
Total net area (rounded)	3, 500
Total gross area (rounded)*	5, 400

*To compute the gross area, it is estimated that 65 percent of the total gross area is available as usable space, while the remaining 35 percent will provide space for exterior walls, partitions, corridors, and mechanical facilities.

education and training and the sheltered workshop illustrate some of the various types that might be programed in a community. They might be single purpose facilities to serve a certain group of retardates or several types of these facilities may be combined into one with a multipurpose program.

EDUCATION AND TRAINING

Although the program of a day facility may comprise many types of services, the basic functions are education and training. These functions must be considered, however, in the broadest sense, because they encompass a wide variety of learning experiences, some of which would not usually be identified with a normal curriculum of instruction. These learning experiences may range from the rudiments of self-care and simple routine requirements of daily living to the highest level of social and intellectual performance attainable within limits of the retarded individual's ability.

Specialized facilities for education and training will serve those who for various reasons cannot qualify for admission to community facilities such as public and private schools and vocational rehabilitation centers, or who require a period of observation and evaluation to determine a suitable course of action for their further care and development. The wide variation in handicapping conditions—mental, physical, and social—that characterize the retarded and the pattern of care, as well as the type of instruction and training, will influence the nature and locale of the physical setting. Specific conditions and requirements should be clearly stated in a written program prepared in consultation with those who have competence in this field.

Preschool Facility

Many communities will find a well-defined need for a specialized day facility to serve nursery and preschool-age retardates. This age group might comprise a substantial number in all levels of retardation because definitive evaluation is frequently difficult before a child reaches school age. This period of early training, observation, and investigation might reveal many who are capable, or who through such training might become capable, of enrolling in special education programs in public schools.

This type of service program is critically needed. Many of those in existence are ill-housed. In response to the urgent demand, parent groups and public and voluntary agen-

Figure 1. **HYPOTHETICAL DIAGNOSTIC AND EVALUATION CENTER FOR THE MENTALLY RETARDED.**
(Based on an annual caseload of 500 retardates with 150 new cases per year.)

cies have resorted to a variety of expedients and substitutes for properly planned physical facilities. New construction is needed to relocate these programs as well as to house the newly established services.

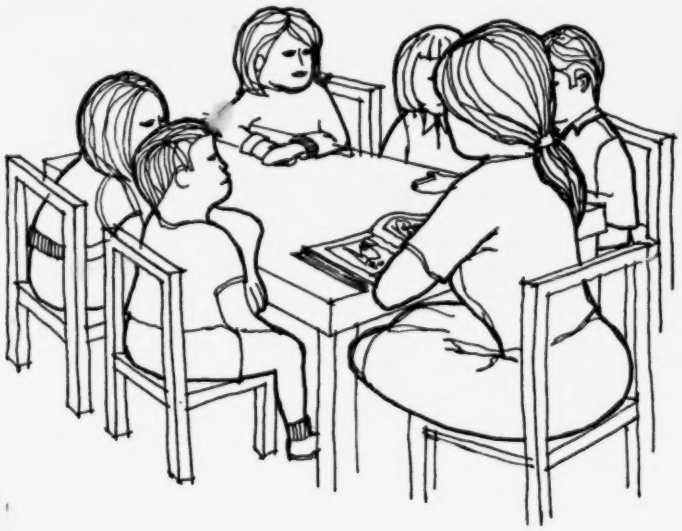
These facilities may be planned for limited enrollments and could be suitably distributed so that locations provide convenient access to retardates and their parents in a given area. Similar physical facilities may be adapted to

serve different categories of retardates in conformance with the specific program.

A schematic of a hypothetical preschool facility to serve 40 retardates is shown in figure 2. Approximate areas for such a facility are listed in table 2. The elements which might be required for this facility are described in the section on Elements of Physical Facilities.

Training and Activity Center

This type facility would serve those in the profound or severe category who are of school age but whose IQ and associated handicaps would not qualify them for public schools and who do not have the potential to reach this level. They can, however, be trained to improve their personal habits and acquire a certain degree of self-help. The type of training and activities would be elementary in nature and directed toward motor skills, personal grooming, simple handicrafts, and socialization. Communicative skills might also be developed or improved. These retardates would respond and could profit from systematic habit training and exposure to daily routine activities.



A similar physical facility might also be adapted with certain modifications to a program for retardates with a higher mental level who because of associated handicaps could not be admitted to public schools or who require some specialized training to meet the necessary qualifications.

Figure 3 shows a schematic of a hypothetical training and activity center for 70 retardates in the profound and severe categories. Table 3 lists approximate areas for such a facility.

Table 2. **APPROXIMATE AREAS FOR A PRESCHOOL TRAINING AND ACTIVITY CENTER FOR THE MENTALLY RETARDED**

(40–50 pupils—3–8 years old)

	Approximate area (square feet)
Entry	80
Lobby and waiting	300
Director	160
Secretary	120
Child development specialist	140
Staff lounge	140
Instructional aid	170
Supplies	40
First-aid room	140
Bed space	50
Bath	40
Multipurpose room	2,400
Storage	200
Observation	60
Individual training (2)	100
Toilets (2)	120
Activity rooms (3)	2,700
Observation (3)	180
Individual training (3)	150
Storage (cots, etc.) (3)	120
Toilets (3)	270
Kitchen	240
Dishwashing	80
Food storage	50
Waste	40
Janitor	50
Public and private toilets	100
General storage	140
Equipment storage	120
Total net area (rounded)	8,500
Total gross area (rounded)*	13,000

*To compute the gross area, it is estimated that 65 percent of the total gross area is available as usable space, while the remaining 35 percent will provide space for exterior walls, partitions, corridors, and mechanical facilities.

Elements shown and others which may be required are described in the section on Elements of Physical Facilities.

Young Adult Training and Activity Center

Another type of day facility would provide postschool training and activity programs for young adults of approximately 15 years and

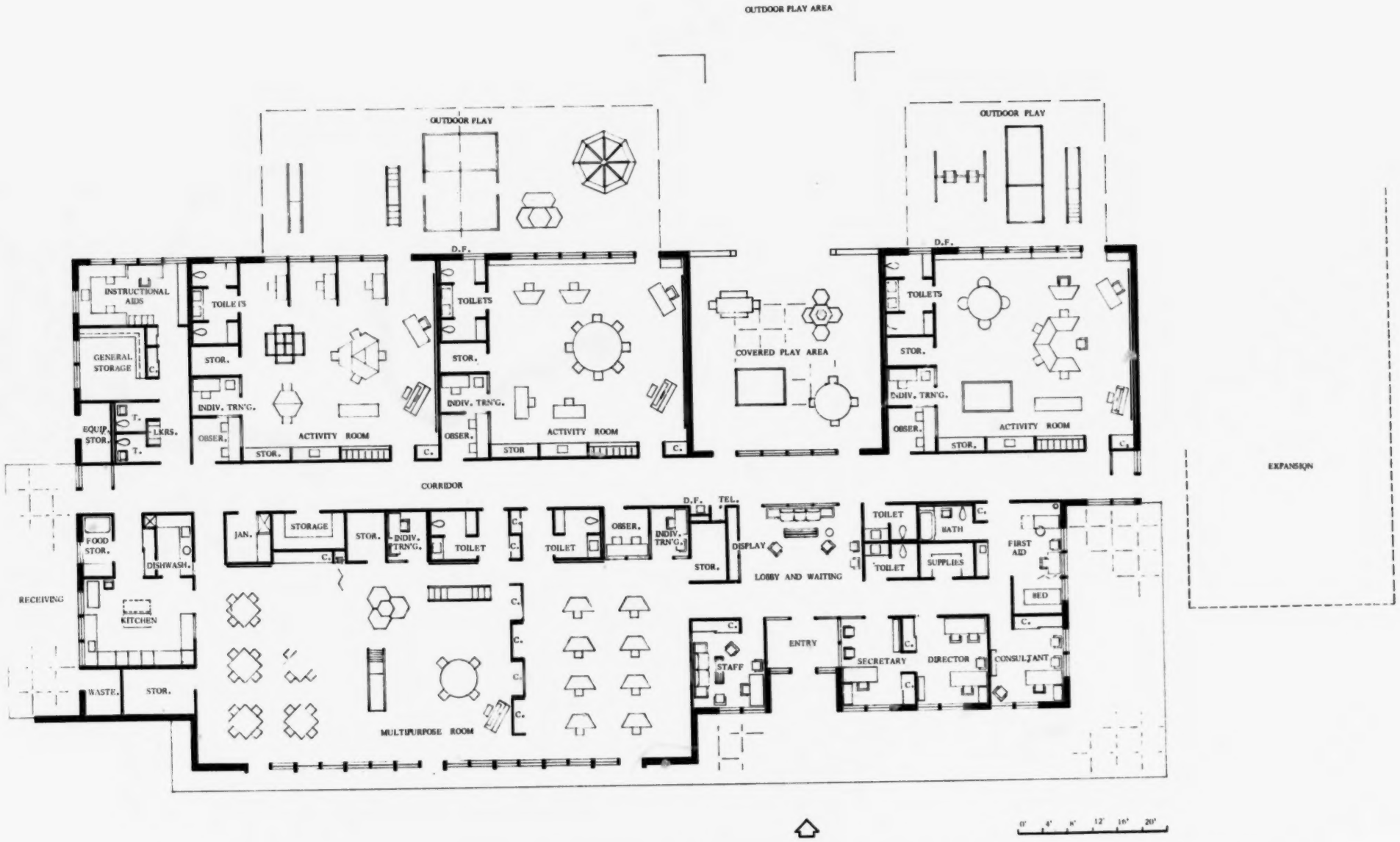
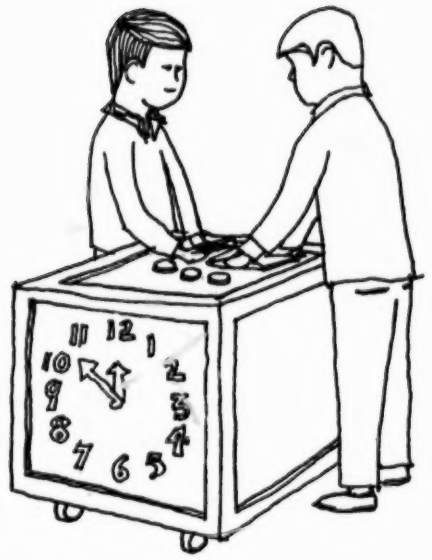


Figure 2. **HYPOTHETICAL PRESCHOOL TRAINING AND ACTIVITY CENTER FOR THE MENTALLY RETARDED.**
(Based on a caseload of 40–50 pupils, 3–8 years old.)



older who have an achievement potential and could benefit from such training. Appropriate phases of instruction and training not previously received or requiring further effort would be provided in this setting and vocational evaluation and training would be emphasized. Prevocational evaluation facilities may be provided to permit a more careful assessment of the retardates' potential and work tolerance. Recreational activities and socialization during the day and possibly in the evening would also be a part of the facility program. Many would progress from this training to a sheltered workshop or enter community life in extended employment. For this reason, a work or production area should be provided to permit training in the type of work experience they might encounter following this instruction period.

A suggested layout for a hypothetical adult training center for 70–80 retardates is shown in figure 4. The approximate square foot areas for the elements in such a facility are given in table 4. For a description of the elements shown and others which may be appropriate see the section on Elements of Physical Facilities.

Table 3. APPROXIMATE AREAS FOR A TRAINING AND ACTIVITY CENTER FOR SEVERELY RETARDED

(Based on a caseload of 70–80 students—8–21 years old)

	Approximate area (square feet)
Entry	80
Lobby and waiting	500
Director	150
Secretary	120
Consultants	120
Psychologist (child development specialist)	120
Staff lounge	170
Staff toilets (2)	60
Instructional aids	200
First-aid room	120
Bed space	50
Bath	40
Multipurpose room	2, 200
Storage	70
Instruction rooms (4)	3, 600
Observation (4)	320
Individual training (4)	240
Storage (4)	160
Toilets (4)	240
Special instruction	320
Personal care—daily living	900
Storage	70
Arts and crafts	900
Storage	70
Special training	1, 200
Storage	70
Materials and supplies	440
Janitor training	80
Supervisor(s)	200
Students' toilets (2)	240
Public toilets (2)	60
Kitchen	360
Dishwashing	120
Food storage	60
General storage	200
Employees' toilets (2)	60
Waste	40
Total net area (rounded)	14, 000
Total gross area (rounded)*	21, 500

*To compute the gross area, it is estimated that 65 percent of the total gross area is available as usable space, while the remaining 35 percent will provide space for exterior walls, partitions, corridors, and mechanical facilities.

Sheltered Workshop

As another type in the category of day facilities, a sheltered workshop may offer the ultimate goal for many mentally retarded individuals. All the efforts in their care, treatment, and habilitation from early life are hopefully directed toward their growth and development to a satisfactory level of social adjustment and economic sufficiency. The major-

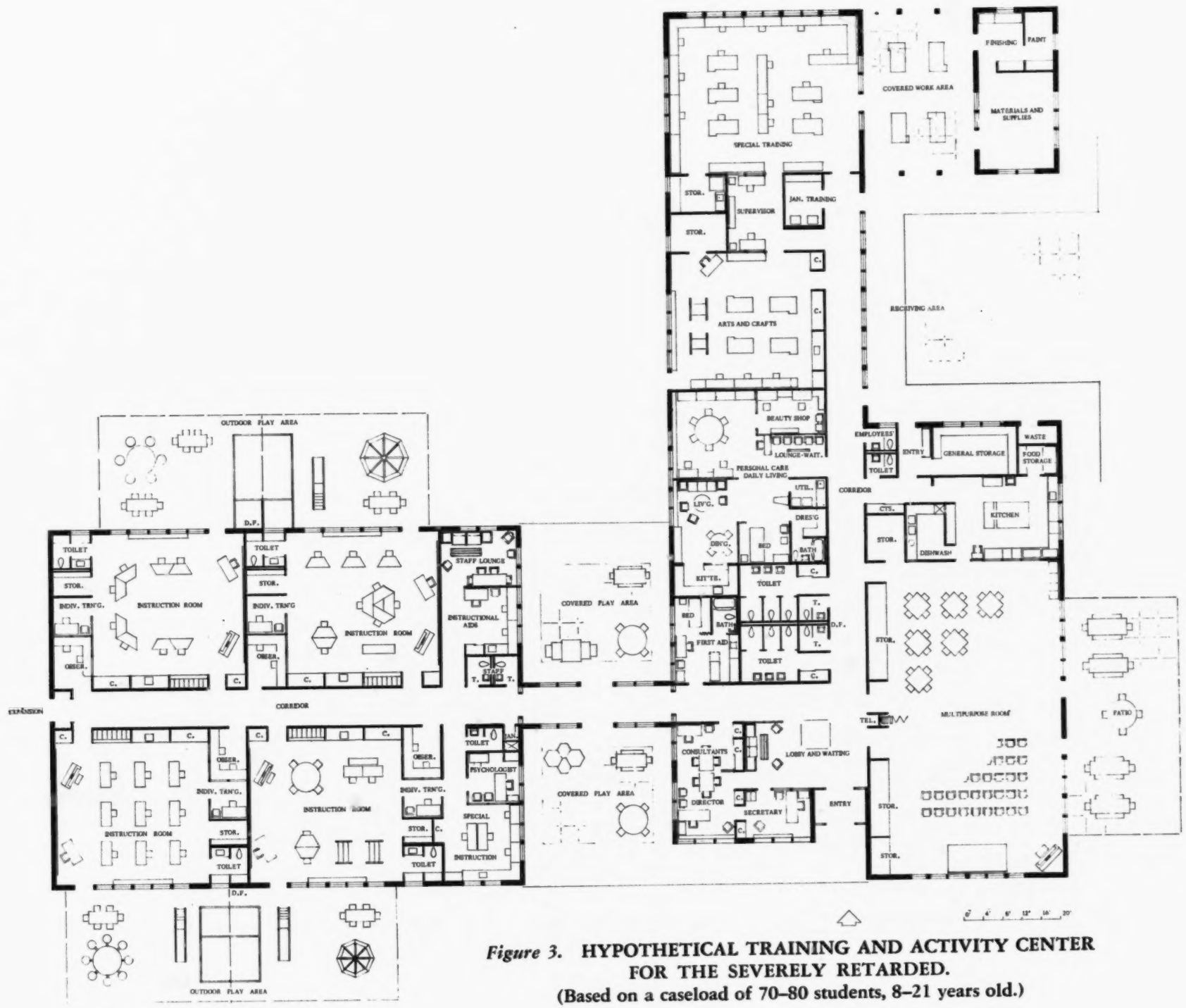


Figure 3. **HYPOTHETICAL TRAINING AND ACTIVITY CENTER FOR THE SEVERELY RETARDED.**
(Based on a caseload of 70–80 students, 8–21 years old.)

Figure 4. **HYPOTHETICAL YOUNG ADULT TRAINING AND ACTIVITY CENTER FOR THE MENTALLY RETARDED.**
(Based on a caseload of 70–80 retardates, 15 years old and over.)

Table 4. **APPROXIMATE AREAS FOR A YOUNG ADULT TRAINING AND ACTIVITY CENTER FOR THE MENTALLY RETARDED**

(Based on a caseload of 70–80 retardates—15 years old and over)

	Approximate area (square feet)
Entry	80
Lobby and waiting	450
Director	140
Secretary	120
Conference	200
Office	100
Instruction rooms (2)	1,600
Observation	90
Individual training	60
Storage (2)	90
Vocational evaluation	1,100
Counselor	140
Supervisor	140
First-aid room	140
Bed area	50
Bath	40
Multipurpose room	2,400
Storage	250
Work area	4,400
Special training area	1,000
Janitor training	120
Grooming	60
Locker rooms (2)	500
Public and private toilets	340
Kitchen	550
Dishwashing	90
Food storage	70
Employees' toilets (2)	100
Custodian's office	80
General storage	500
Total net area (rounded)	15,000
Total gross area (rounded)*	23,000

*To compute the gross area, it is estimated that 65 percent of the total gross area is available as usable space, while the remaining 35 percent will provide space for exterior walls, partitions, corridors, and mechanical facilities.

ity, no doubt, can attain this objective and take their place, though perhaps with some limitations, in a competitive society. An appreciable number, however, do not possess the potential for this accomplishment. They are capable of marginal independence only in a sheltered environment. They may require sheltered living conditions, sheltered employment, or sheltered social and recreational activities with counsel and guidance in times of stress or in solving personal problems. Many in this category of the mentally retarded are presently employed in sheltered workshops in their community in company with individuals who have other handicaps. This is a most desirable pattern and should be encouraged. New facilities built especially for the mentally retarded should be considered, when justified, by administrative planning programs and other special local conditions.

The sheltered workshop may be associated or combined with other services or facilities but should have a separate entrance. A location in a commercial-industrial area that would suggest an independent identity would be more desirable. In planning such a facility, State or local vocational rehabilitation authorities should be consulted. They can provide valuable assistance in suggesting the type of contract work that may be appropriate as well as certain features that may be desirable in the physical plant.

In a sheltered workshop, the program involves a business operation with contractual work for private firms and organizations and, insofar as possible, normal business procedures will be followed.

Figure 5 shows a suggested layout of a hypothetical sheltered workshop to accommodate approximately 75–80 employees. Table 5 lists the approximate square foot areas for the suggested elements in such a facility. These elements and others that may be included in a sheltered workshop are described in the section on Elements of Physical Facilities.

LIVING UNITS (24-HOUR CARE)

Living units for retardates may be the setting for much if not all of their care, training, and habilitation. The design of these units will be determined by the handicaps and limitations of the retardates. To create an appropriate

physical environment, the architect must know the nature of the handicaps of those to be housed and must understand the program of care and treatment. The living units should provide safety and stimulation for the retardates and be conducive to effective administration of the program. The number of retardates in a living unit should be small to allow close personal attention and interest, a more homogeneous grouping with the same degree of handicaps, and a closer simulation of a family setting. If the physical facility is open and informal in character, in contrast to the traditional institution, the desired atmosphere of a normal home environment can be more nearly achieved. The skillful use of color and all features that assist in creating warm and friendly surroundings should be incorporated.

In general, living units may be categorized as those for nonambulatory retardates and those for the ambulatory. A description of each category follows.

Units for Nonambulatory Retardates

Many of the nonambulatory retardates will require intensive nursing care under close medical supervision because they will be either profoundly retarded or, if at a higher mental level, will be severely limited in their mobility. They may be housed in a hospital wing, an infirmary type setting, or in cottage units of appropriate design. Grouping should take into consideration the mental capacity as well as physical and other associated handicaps of the retardate.

Basically, the facilities will be designed to provide 24-hour nursing care. In addition, however, they would include medical care and certain habilitation services appropriate to the needs and potential of the residents such as

Table 5. **APPROXIMATE AREAS FOR A SHELTERED WORKSHOP FOR THE MENTALLY RETARDED**

(Based on a caseload of 75–80 employees)

	Approximate area (square feet)
Entry	80
Lobby and waiting	330
Display	100
Director	160
Secretary	110
Conference	200
Social worker	120
Contract manager	130
Business manager	130
Multipurpose room	1,000
Storage	100
First-aid room	140
Bath	40
Evaluation	900
Counselor	120
Supervisor	120
Production area	8,800
Shipping and receiving	840
General storage	1,300
Offices (2)	140
Shop	500
Kitchen	280
Dishwashing	120
Food storage	70
Employees' lockers	420
Employees' toilets	400
Staff toilets (2)	140
Public toilets (2)	60
Janitor training	90
Janitor	20
Waste	40
Total net area (rounded)	17,000
Total gross area (rounded)*	26,000

*To compute the gross area, it is estimated that 65 percent of the total gross area is available as usable space, while the remaining 35 percent will provide space for exterior walls, partitions, corridors, and mechanical facilities.

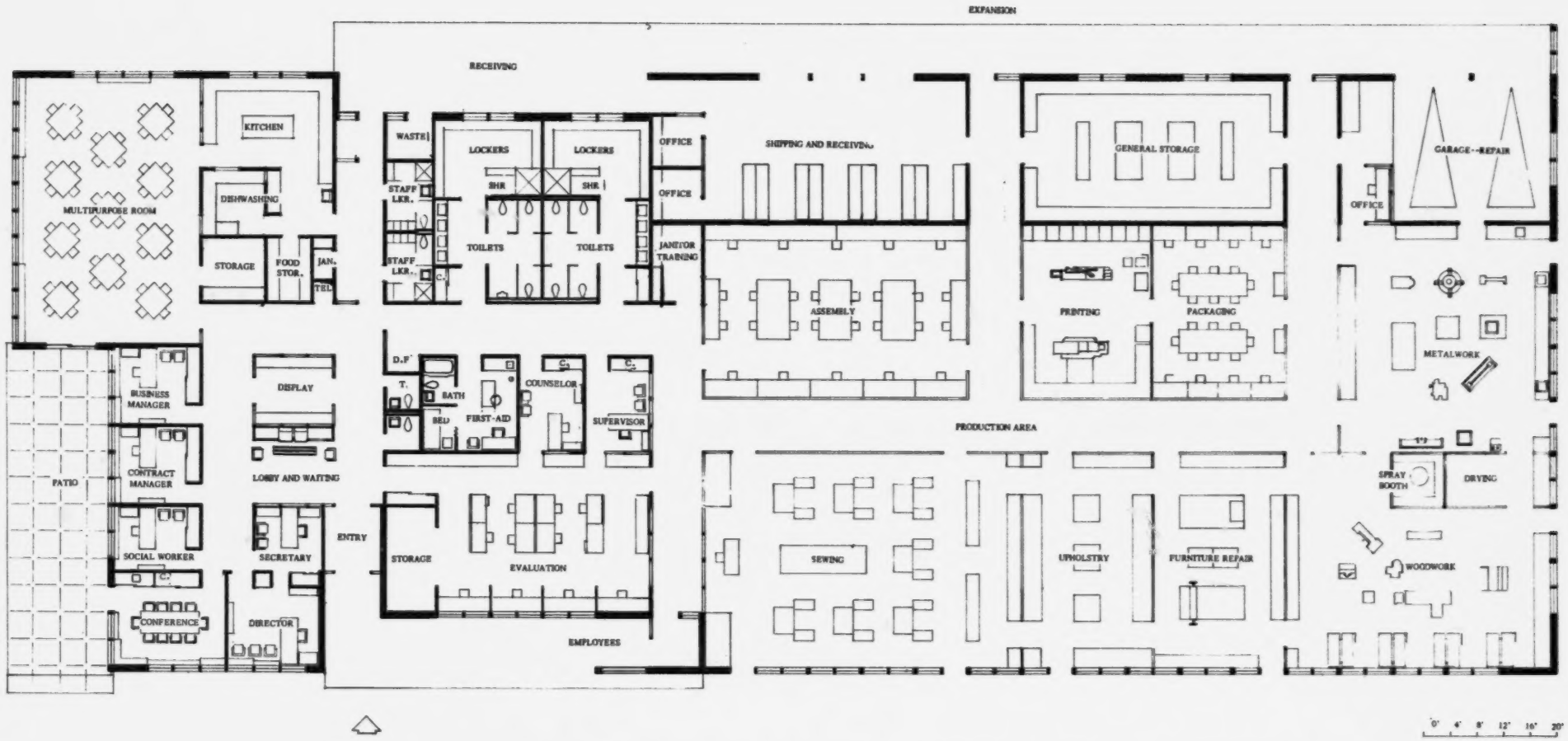


Figure 5. **HYPOTHETICAL SHELTERED WORKSHOP FOR THE MENTALLY RETARDED. Based on a caseload of 75–80 employees.)**

Table 6. **APPROXIMATE AREAS FOR A LIVING UNIT FOR 24 NONAMBULATORY RETARDATES**

	Approximate area (square feet)
Entry	70
Lobby and waiting	200
Director	130
Secretary	90
Consultant	100
Staff lounge	130
Examining room	100
Toilet	20
Sterilizer	80
Therapy	500
Dining-conference	250
Kitchen	230
Dishwashing	90
Food storage	60
Employees' lockers (2)	120
Public toilets (2)	60
General storage	100
Laundry room	90
Soiled linen	50
Janitor (3)	100
Waste	30
Nurses' station (2)	120
Nurses' toilets (2)	60
Bedrooms (12)	2, 000
Baths and toilets	750
Isolation room (2)	200
Toilets (2)	60
Clean utility (2)	80
Soiled utility (2)	120
Activities (2)	1, 300
Visitors (2)	240
Toilets (2)	60
Linen (2)	80
Storage (4)	280
Clothing (2)	100
Stretcher and wheelchair (2)	100
Total net area (rounded)	8, 150
Total gross area (rounded)*	12, 500

*To compute the gross area, it is estimated that 65 percent of the total gross area is available as usable space, while the remaining 35 percent will provide space for exterior walls, partitions, corridors, and mechanical facilities.

training in personal habits and daily living, recreation, physical and occupational therapy, and similar activities. A facility of this type might also be combined with a more comprehensive center which could include a diagnostic and evaluation clinic and a broad variety of other services in day or residential care for different categories of retardates.

Figure 6 shows a suggested layout for two living (nursing) units of 12 beds each for nonambulatory retardates and table 6 lists the approximate square foot areas for the suggested elements. These elements and those shown for living units for ambulatory retardates are described in the section on Elements of Physical Facilities.

Units for Ambulatory Retardates

Living units for ambulatory retardates are the focal point for all the many diversified activities and therapies in the total care and treatment program just as home and family are the center of living for a normal individual. Here, much of their training is carried out, their characters are formed, and their personalities are developed. Therefore, the design of these living units can and should reflect as nearly as possible the desired character of a home.

To avoid the atmosphere of the traditional institution and to create a near normal family environment, approximately 10 to 12 ambulatory retardates should be housed in a living unit. These units may be self-contained, cottage-type buildings for one unit, or for convenience and a broad socialization experience, several units may be grouped together. Certain areas such as dietary, training, recreation, and activities may be located for joint use.

Figure 7 shows a suggested layout for living units for a total of 20 ambulatory retardates and table 7 lists the approximate square foot areas for the suggested elements.

Figure 6. **HYPOTHETICAL LIVING UNITS FOR 24 NONAMBULATORY RETARDATES.**

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Table 7. **APPROXIMATE AREAS FOR A LIVING UNIT FOR 20 AMBULATORY RETARDATES**

	Approximate area (square feet)
Entry	60
Hall	220
Office-lounge	260
Visitors' room—with bath	150
Living room	320
Dining room	380
Hobby room	100
Storage	80
Kitchen	220
Dishwashing	80
Food storage	40
Laundry room	100
Soiled linen	60
Sickroom—with bath	150
Toilets (3)	120
Janitor	40
General storage	100
Bedrooms (8)	2, 400
Bathrooms (2)	480
Linen (4)	60
Storage (4)	120
Outdoor equipment storage (2)	100
Mudrooms (2)	100
Supervisors (2)	160
Supervisor's bedroom—with bath (2)	300
Activity rooms (2)	800
Total net area (rounded)	7, 000
Total gross area (rounded)*	10, 800

*To compute the gross area, it is estimated that 65 percent of the total gross area is available as usable space, while the remaining 35 percent will provide space for exterior walls, partitions, corridors, and mechanical facilities.

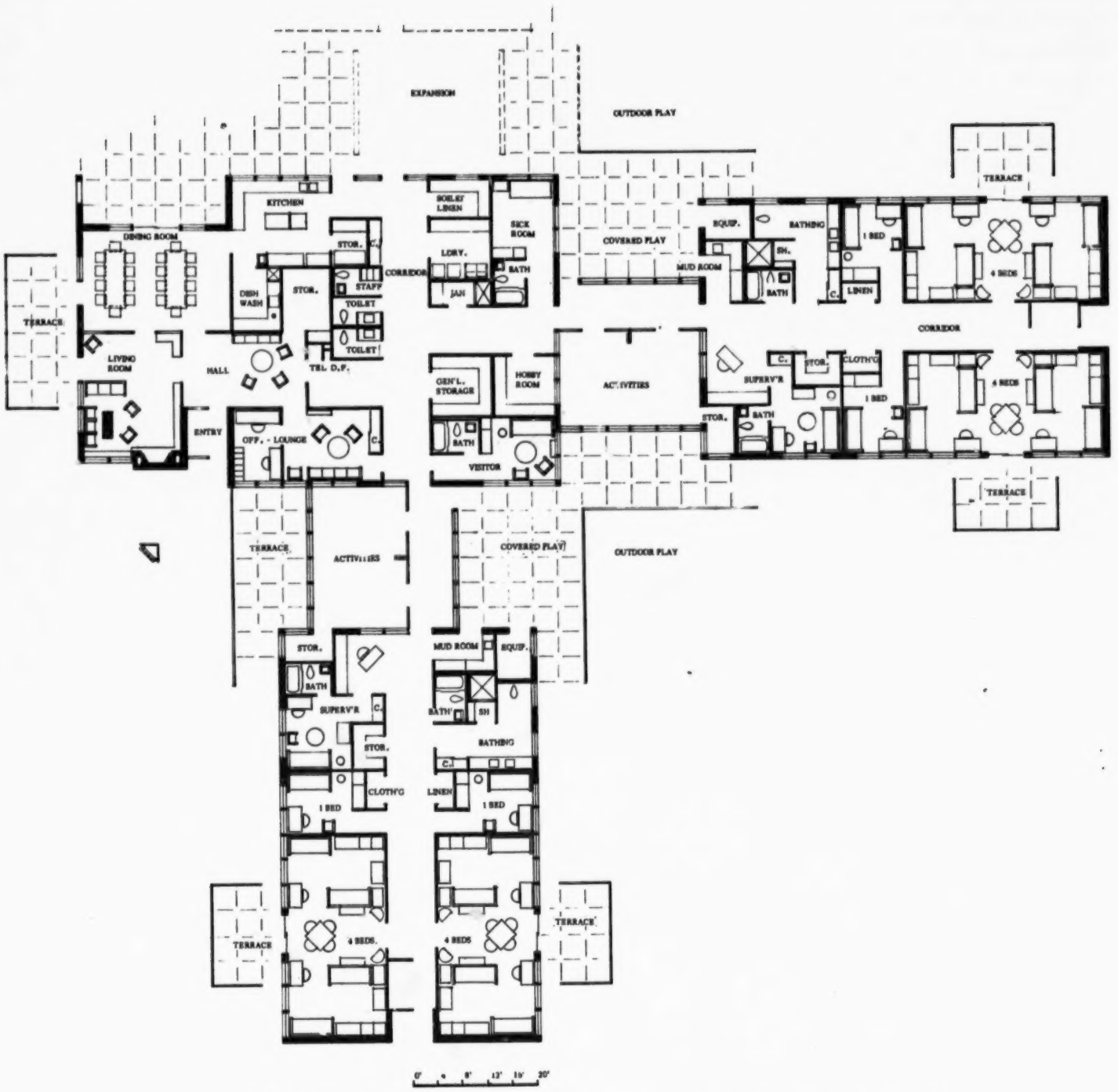


Figure 7. **HYPOTHETICAL LIVING UNITS FOR 20 AMBULATORY RETARDATES.**

ELEMENTS OF PHYSICAL FACILITIES

Physical facilities for the comprehensive diagnosis, treatment, training, and care of the mentally retarded require a variety of individual elements to accommodate the wide range of necessary services and disciplines. The broad scope of services required, the many diverse patterns of care, and the wide variation in categories of the mentally retarded will result in no two facilities having identical programs. In designing a facility for a particular community, whether it be a diagnostic and evaluation facility, a day facility, living units, or a combination of all three, the required elements will have to be selected and adapted to the particular pro-

gram of the community. In combining the elements to satisfy a particular project program, certain services and functions such as dietary, administration, and laundry may be centralized or used jointly. The following description of the various elements may prove useful in this selection and adaptation.

STAFF OFFICES

Office space for the staff is basic to most types of facilities for the mentally retarded. Occupants of this space will vary with the disciplines and types of personnel required to carry out the service program of the facility. Many of the offices will be similar in character but their function and relationship to other areas may differ. This section lists and identifies office space for major disciplines and the supporting personnel that may be required for the services contemplated by a specific program. General features common to most offices are described on p. 24.

Director

The director or administrative head of a facility will be responsible for coordinating and directing all the disciplines and personnel engaged in its activities. He may be a physician, psychologist, special educator, or some other professional, depending on the nature of the program and the administrative policy. Whatever his title, director, superintendent, principal, or other appropriate designation, he should be provided with an office commensurate with his responsibility and the size of the facility. A location easily accessible to visitors is desirable but preferably away from areas that would cause undue distraction. It should also provide a measure of privacy for consultations and conferences.

Offices for assistants to the director, supervisors of certain phases of the program, or other administrative personnel may be required depending on the size and nature of the facility. These should be located convenient to the administrative area or to the area of activity in which the staff member is engaged.

Business and contract offices in sheltered workshops or where indicated in other types of programs will be required for personnel responsible for these duties. A location permitting easy access for the public is desirable.

Medical Personnel

Offices will be required for physicians on the full-time medical staff as directors of facilities, clinical directors, or in capacities responsible for other phases of medical service. The director of a diagnostic and evaluation center is frequently a physician, who would also make examinations and diagnoses. These are basic elements in evaluating all mentally retarded individuals. His office, therefore, should be near the examining rooms (see Ancillary Areas, p. 36). Separate offices should be provided for each full-time medical staff member convenient to the area where his services are performed.

Office space for medical consultants will be required in a diagnostic and evaluation center whether it is separate or combined with other facilities. One office may be used jointly by such consultants as an internist, neurologist, psychiatrist, or others. Separate closet space or locked storage cabinets may be desirable for each consultant. Examination by consultants will be made in the medical examining rooms. (See Ancillary Areas, p. 36.)

Psychologist's Office

The psychologist must interview and test the retardate and often will interview the retardate's family. He determines the mental level of the retardate, evaluates his emotional stability and social behavior, and analyzes his limitations as well as his potential. Offices for pschologists are usually required in all types of facilities for the mentally retarded. In some cases these offices may be used jointly with other disciplines.

The psychologist's office should afford complete privacy and preferably should be acoustically treated because it will be used for interviewing and for some testing. It should be large enough to permit interviews with several people at one time. If possible, it should adjoin the *observation-playroom and individual test-*

ing room, when these are provided (see Ancillary Areas, p. 36), and should be equipped with a one-way view window and intercom to these areas. Convenient observation of an outdoor play area is also desirable. In addition to the usual office furniture, this office should be equipped with a storage cabinet for storing test equipment and supplies and a chalkboard and tackboard.

Social Worker's Office

The social worker must investigate all aspects of the retardate's background and environment and serve as liaison between the family and other agencies and disciplines in the community. Social workers' offices should be large enough to permit interviews with several people such as the retardate and his family. Counseling with individuals, parents, and larger groups is an important phase of the social worker's responsibility. The office should be located for easy access by the public but should allow complete privacy for confidential interviews; sound transmission should be kept to a minimum. Several offices for social workers may be required in a diagnostic and evaluation facility and in some other facilities, depending on the size and the program of the facility.

Special Educator

Offices for special educators or child development specialists will be required when indicated by the program of a facility providing this discipline full time. Special educators have a major role in service programs of certain facilities, among which are education and training centers, and serve as consultants to the staff of such facilities as diagnostic and evaluation centers. (See also Other Offices—Consultants.)

Offices for instructors or teachers may be required adjoining the instruction room or training area for certain project programs in addition to a desk in the instruction room. Offices may only be of sufficient size to permit a desk and several chairs with a file cabinet and storage space or bookshelves. They may be used by teachers as a teaching booth or for private consultation. They should permit observation of the instruction or training area.

Rehabilitation and Vocational Personnel

Offices for rehabilitation personnel and vocational counselors will be required in such facilities as sheltered workshops and where vocational evaluation and work programs preparatory to job placement are carried out in workshop programs. The director as well as supervisors and instructors are usually rehabilitation or vocational counselors. Vocational counselors would also be responsible for the vocational evaluation and guidance program in other facilities such as the adult training center. They would serve as consultants to the staff of such facilities as diagnostic and evaluation centers for a vocational evaluation of retardates in appropriate age groups and mental levels. (See also Other Offices—Consultants.)

Offices for supervisors, counselors, and instructors should be located adjoining and with easy access to the work or training area for which they are responsible. The offices should be enclosed for privacy but should permit as complete observation of the activity being supervised as possible. The location preferably should be convenient to offices of other staff members and to public access.

Supervisor's space appropriate for the nature of his duties should be provided in living units for ambulatory retardates. It may be an office, a desk and file in a reception hall, or a nurses' station, but it should be as compatible as possible with the whole interior character of the unit as a home. It should permit necessary observation and control where this is required. A storage closet or cabinets that can be locked will be needed.

Public Health Nurse

The public health nurse is an important member of the evaluation team and as a full-time staff member of the diagnostic and evaluation center would have an office in this facility. Because of interviews with retardates and families, this office should have convenient access for visitors and provide the necessary privacy.

Other Offices

Physical and occupational therapists, and recreational counselors will require offices when they are directing, supervising, or engaged in full-time programs as staff members in a facility. Offices should be located within or adjacent to their area of responsibility and should have provisions for observation and control.

Consultants, other than medical, such as a nutritionist and educational or vocational counselor, will require office space in a diagnostic and evaluation center and other facilities where their consulting services are required. For a limited number of such consutlants, one office can usually be used jointly.

Interns and trainees will require an office for deskwork and study if inservice training is included in the program of the facility.

An office (*unassigned*) is desirable in a diagnostic and evaluation center and perhaps in other facilities for use as a general purpose area. It may be used by trainees for private interviews; as a convenient secretarial office when needed for social workers, public health nurse, or other disciplines; for overflow space for counseling or when other space for consultants is in use; or for expansion of the staff. More than one such office may be justified under certain conditions.

Case records may be kept in a small office, cubicle, or other space affording privacy in or adjacent to the secretarial office or fileroom where staff members can conveniently review files. The size of the space and the arrangement will be determined by the administrative policy for maintenance and control of case files.

Secretarial offices will be necessary to provide secretarial assistance to all disciplines in faciilties for the mentally retarded. The director of a facility will usually require a private secretary and her office should adjoin his. Other professionals may share a secretary or a secretarial pool may be provided to serve a number of personnel. The office of the director's secretary or the secretarial pool may include an information desk if the office is located near the lobby and main waiting area; if not, a separate information space may be provided. The information area should be located to permit observation and control of the entry and waiting area and allow space for a receptionist or for the secretary to serve as a receptionist. Space should be provided at the receptionist's area or in the secretarial office for an intercom or PA station (if required) and to maintain limited records or a card file. Facilities may be provided in the secretarial office for distribution of staff mail and communications.

General Features of Offices

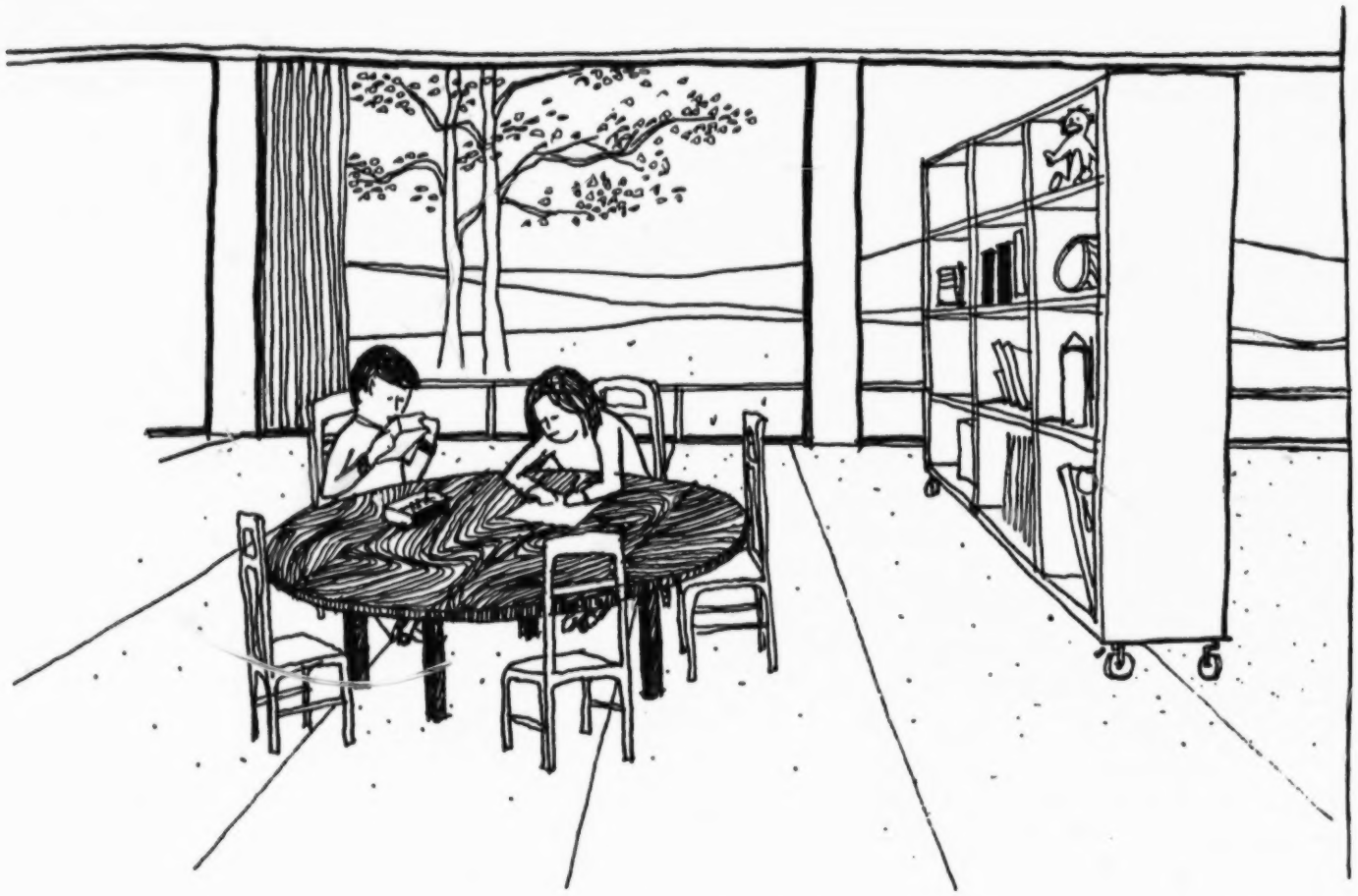
Offices should be sized to accommodate the required equipment and furnishings and allow complete freedom of movement for the occupants. Separate offices should be provided for staff members who will be conducting interviews or counseling and adequate space should be provided for necessary furnishings and a minimum of four persons. Where offices are also used for testing, floor area should be increased to allow adequate space for testing procedures. The director's office may be more spacious than other staff offices because he may have frequent conferences and consultations. A small conference table and other appropriate furnishings may be included in the director's office. All offices should have space for coats and storage of supplies and necessary equipment. The psychologist's office, for instance, should have an area for storing testing material and equipment. Locks may be required on some of the cabinets or storage spaces. In offices where many files are located, adequate space should be provided for easy and convenient access. Furnishings and equipment will be those normally provided such as desk, chair, visitors' chairs, files, bookcases, and tables.

ACTIVITY AND TRAINING AREAS

Education and training for the mentally retarded ranges from preschool training in the simplest routines and habits of daily living to vocational training in a sheltered workshop. The program for each facility will determine how many and in what combination the elements described in this publication will be required.

Instruction (Activity) Room

The instruction room is a basic element in training facilities. It will serve as the center



or homeroom for basic training and a wide range of learning experiences but may be supplemented by other activity areas particularly for school-age groups. Much more space is required per pupil in these rooms than in standard classrooms, but class sizes are smaller. A minimum of 900 square feet of open space is recommended for a maximum of 6 to 8 severely retarded, 10 to 12 moderately retarded, or 12 to 15 mildly retarded. It may be desirable to provide a certain number of smaller classrooms or subdivide large ones to accommodate smaller groups or to serve different categories or functions. This can be accomplished by folding partitions, by movable furnishings, or by portable dividers for partial or complete separation.

Versatility is an important feature in the design of instruction rooms as well as other elements of facilities for the mentally retarded. Adequate space is a major consideration in achieving versatility of use and to provide for movement of physically handicapped and the use of wheelchairs and other aids. Program needs are diversified and room functions are subject to frequent changes. Different curriculums of instruction will be required for the various categories and age groups, but classrooms may be adapted to the program by a change in the furnishings. For this reason most of the equipment and furnishings should be mobile but with maximum stability. Movable desks, worktables, and chairs can be arranged to allow an open area for indoor group activities and play.

There should be generous areas of display boards or tackboards, part of which must be within easy reach to the youngest child. Some eye-level chalkboards will also be needed. Display boards and chalkboards may be of a movable type or installed in a wall track that would permit variable heights. It may also be desirable for some to slope in an easel position. Grab bars may be desirable for support of retardates while they are standing. Wall mirrors should also be provided because they are important in

training procedures. Much more storage space is required within or adjoining the room than in a normal public school for instructional aids and materials, various equipment, books, toys, and the like, as well as for pupils' clothing and personal effects. Some storage can be provided in movable cabinets for ease in transporting materials and supplies to activity areas. These may also be used as dividers to define separate areas. Built-in cabinets against the walls, some with locked compartments for the teacher, are also suggested. They may have sliding or bifold doors, and tackboards, pegboards, or flannel boards may be provided on the face. These will provide convenient access for storage and additional surfaces for exhibits.

Counter-high or under-the-window shelving will also provide storage and display space within reach of smaller children.

A workcounter with a sink should be provided and may include a drinking fountain. Individual lockers, preferably with open fronts, for storage of coats, wraps, toilet articles, and personal effects should be provided and will assist in the training process. Lockers should have some means of individual identification. For certain categories in the older age groups, lockers may be in the corridor or a central locker room. A record player, radio, or television, and a filmstrip projector are standard equipment, and a small piano is often used. A teacher's desk, chair, and file cabinet will be required.

Large storage areas adjoining the room are required for bulky items such as play equipment, mockup furniture, instructional aids that cannot be stored in cabinets, and nap mats or cots used by young children during rest periods. For information on toilets adjoining instruction rooms, see Anciliary Areas, p. 36.

The instruction rooms in a preschool facility would be similar in size to those for older ages but the number accommodated would be less. This would provide more space for large play equipment, mockup furniture, and similar items, as well as increased area for play and group activities. The instruction room for this age group is generally the setting for all the activities except for the adjoining outdoor play area. Other features of instruction rooms, previously described, would also be required for preschool children.

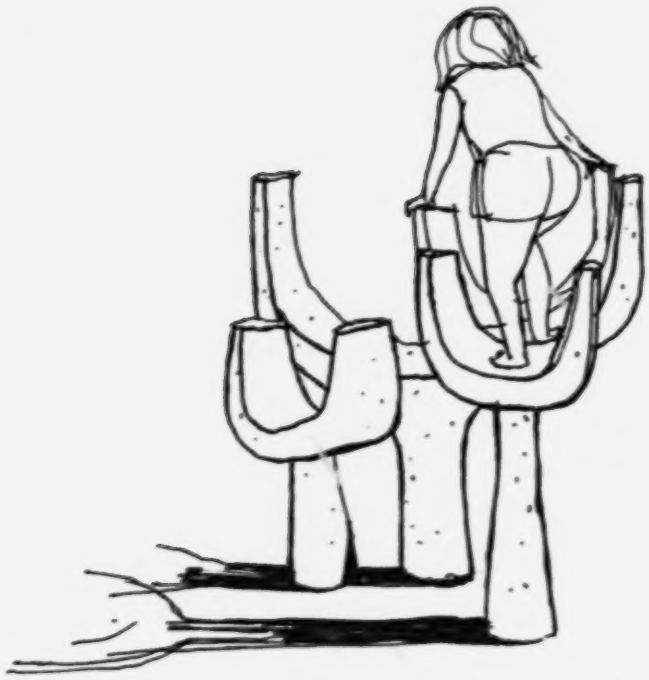
Observation Booth

An observation booth or room adjoining instruction rooms and activity areas is usually required for staff members, parents, trainees, and others to observe activities in these areas through one-way view windows. (A space in the corridor, which is less desirable, could serve the same purpose.) The size of the booth will depend on the number expected to occupy it at any one time. A fixed counter and stools under the window may be desirable for convenience in taking notes. The window should permit a view of as much of the room as possible and should be placed where distraction of those being observed would be minimized. Provision might be made for covering and uncovering the window by the teacher on the instruction room side by sliding tackboards, chalkboards, screens, curtains, or some other device. The observation booth must be soundproof and equipped with intercom to the instruction room for audio as well as video observation.

Individual Training Booth

The individual training booth would provide a minimum space of 40 to 50 square feet to serve an individual pupil (neurologically damaged or emotionally disturbed) in reducing overstimulation during certain periods. It may also be used by pupils who learn more easily

apart from a group. It should be located so that it may be viewed from the psychologist's office and from the instruction room. Certain project programs may provide for these individual rooms adjoining each instruction room with provision for easy observation by the instructor, but where only one is available, direct access and convenient supervision are desirable. If a small office for the teacher adjoins the instruction room, it may be used as a teaching booth for individual instruction. A table, chair, and tackboard are the basic furnishings required.



for better control of the retardates and for privacy.

Outdoor play areas or patios are also necessary as part of living units for ambulatory retardates. Some part of the area should be sheltered from the sun and inclement weather, and a landscaped enclosure here will provide better control and privacy of the retardates.

Outdoor Play Area

An outdoor landscaped enclosure adjoining and accessible from each instruction room is an essential extension of the inside instruction and activity area particularly for the younger children. The same size as the interior room is recommended as a minimum and some measure of protection from the weather and direct rays of the sun for at least part of this area should be provided. A drinking fountain in the play area and conveniently located toilets are desirable.

The area should provide for water play and include muscle and corrective play equipment such as swings, teeters, catwalk, merry-go-round, and jungle gym. Special structured equipment may be necessary and should be considered in planning. Some of this equipment may be placed in a larger joint play area serving more than one group of students. Certain pieces of the smaller portable equipment may be moved inside during unfavorable weather. All outdoor play areas should be located so they can be observed and should be enclosed with an attractive landscaped enclosure or pierced walls

Multipurpose Room

The multipurpose room is a basic element in most facilities for the mentally retarded, especially where individual areas for each of the variety of functions it serves are not provided. It may be used for many purposes such as dining, group activities and socialization, recreational programs, some corrective physical therapy using light mobile exercise equipment, training in assembly line work, and certain other

activities in a work experience. It may also be used for personnel training and conferences, parent and public meetings, and entertainments. If equipped for subdivision into smaller areas, it will permit versatile use by small groups of different ages and for diverse functions. For some activities a sink may be required.

Adequate storage should be easily accessible for chairs, tables, movie projection equipment, and possibly mobile exercise and play equipment, as well as a portable stage or platform. It may also be necessary to store mockup furniture, bulky instructional aids, portable tackboards and chalkboards, display panels, audio and visual aids, and a wide variety of items. If no music room is provided in the facility, musical instruments and stands and perhaps the piano may also require storage.

The functions of the multipurpose room will depend on the extent to which other specialized areas are provided in the facility, but a location convenient for public access is desirable and an adjoining patio for outdoor activities may be considered.

No specific fixed equipment is required unless indicated in a particular program. If this room is used for dining and a kitchen adjoins, a pass-thru window to the dishwashing area and perhaps a serving counter to the kitchen or cafeteria line will eliminate some confusion in these areas. However, they should not detract from the use of the room for more formal occasions. Tables which fold into the wall are sometimes used for dining or other purposes. A fixed movie screen that can be lowered when needed would be convenient. Portable projectors, television sets, and similar equipment will provide a more convenient and versatile arrangement in the use of this room.

For a small facility, the multipurpose room may be omitted and provisions may be made for opening several instruction rooms together for group activities.

Arts and Crafts

A separate room may be desirable in training and activity centers for arts and crafts. This area would generally be used by the older age groups, because these activities for younger children are usually carried out as a part of the curriculum in their instruction rooms.

Arts and crafts could include a variety of activities such as graphic art work, clay modeling, handicrafts, and leather, wood, or metal work. The nature of the work and the activities would be programed to suit the abilities of the particular category of retardates involved.

A fixed workcounter and sink with drinking fountain should be provided but furniture such as worktables, benches, chairs, and stools should be movable. Some supply and storage cabinets and bins may also be movable for ease in transporting materials to work areas. A teacher's desk, chair, and file cabinet will be required.

Fired ceramics may not be appropriate for the profound and severe categories, but may be suitable for higher level retardates. For fired ceramics a kiln would be required. It should be placed in a separate enclosure for safety.

Storage should be provided for supplies, equipment, materials, and for students' coats and wraps. Other features discussed in connection with the instruction rooms would also be applicable to this area.

Music Room

A separate room for musical instruction and activities may be desirable in certain facili-

ties, particularly when the multipurpose room is not used for this purpose. The music room should be acoustically treated and located to minimize sound transmission and avoid distraction to other rooms and areas. Size will depend on the number to be accommodated but it should be large enough for dancing, games, and other group activities. A movable stage may be desirable. Adequate storage should be provided for the movable equipment, bulky musical instruments, and similar items.

Specialized Training Area

This area provides a more convenient and effective setting than an instruction room for certain types of specialized training, particularly for school-age retardates. One or more of these areas might be required in an education and training center or in a training and activity center. They should be planned and sized to provide appropriate facilities for specific types of training and categories of retardates contemplated in the training program. In general, these areas would be used for training in domestic skills, personal grooming, routine assembly line work, woodworking and finishing, shopping, travel, and activities for which a special setting or special equipment may be required. A sink should be provided in all training areas.

For domestic skills a complete living unit or apartment would be required to permit training in the preparation and serving of food and in bedmaking, housecleaning, laundering, and sewing. Such a living unit would also permit training in social habits and graces. Personal grooming would require bathing rooms with showers or tubs and adequate dressing rooms for teaching more than one at a time how to properly dress themselves, shave, or apply cosmetics, and comb or fix their hair. A barber and beauty shop may be included if older and more capable retardates are involved.

For woodworking, a shop with necessary tools and equipment would be required. This may consist of worktables or benches and simple handtools for the profound and severely retarded. For those with a higher potential, a standard shop with power tools and equipment and a separate finishing room with spray booth may be appropriate. Woodworking should be in a separate area to control dust and litter. Proper ventilation and fireproofing are essential and every precaution must be taken for the safety of the students. The use of power equipment will require special safety measures and strict control by the instructor. A special enclosure to separate the power equipment area is desirable.

An adjacent office for the supervisor or instructor in these areas will permit an escape from noise and dust and will provide some privacy. However, a glazed partition should be used to permit full observation and control of the activity areas. Convenient observation of these areas by one-way view windows is also often desired to permit the family, staff members, inservice trainees, and other interested persons to view the activities.

A mockup of a retail shop with display rack and checkout counter may be used for training in shopping practices. Mockups of telephone booths, turnstile, bus entrances, and other familiar facilities encountered in the community may also be used.

Adequate space for circulation and movement within these areas and around the equipment and furnishings is essential for safety and convenience, particularly for the physically handicapped.

Ample storage must be provided for materials and supplies and for various types and pieces of equipment normally used in each area. In the woodworking and finishing area, storage for large tools should be provided adjacent to the office for better control and a cabinet for small tools may be located in the woodworking shop for convenience but these should be under lock. A material storage room, except for paints, should be provided with access from the delivery entrance to facilitate the handling of large and heavy items such as lumber, pipe, and metal stock.

Speech and Hearing Facilities

The speech and hearing area may be programed for screening and diagnosis that might be undertaken in a diagnostic and evaluation center or it may be planned for both diagnosis and therapy. If used only for screening, an office and possibly a testroom will be adequate depending on the caseload. If diagnosis and

therapy are contemplated, this area would include an office for a therapist and a room for group therapy to accommodate six to eight students. An individual therapy room may also be required if the therapist's office is not used for this purpose. Additional offices and therapy rooms may be required depending on the program or caseload. Provision should be made for one-way observation of the therapy rooms from an adjacent area and also for the installation of electric communicating systems, tape recorders, and similar equipment. Careful acoustical treatment of these rooms will be required as well as mirrors, chalkboards, tackboards, tables, and chairs. For audiometric testing, a specially designed testroom and control booth will be needed. In view of the highly specialized nature of the design, technical advice and consultation are recommended. Specially engineered prefabricated units are frequently used. Speech and hearing facilities should be in an isolated location in the building to prevent interference from outside and inside noises and vibrations.

Evaluation and Instruction Area

The evaluation and instruction area may be included in certain types of facilities such as a young adult training center or a sheltered workshop for the mentally retarded. Such a facility would provide for prevocational evaluation with provisions for separating a part of the area for special instruction and for personnel training. The evaluation area may be divided into individual testing booths, stations, or other arrangements required by the program and testing procedures. Ample storage space should be provided for supplies, testing equipment, and other items. Some, if not all, of the cabinets and storage facilities should have locks. A workcounter and sink is also desirable. An adjoining office which provides full observation of the evaluation area will be needed by the vocational counselor or supervisor.

Work Training and Production Area

A work training and production area is required in a postschool facility for education and training of young adults or in a sheltered workshop. The nature of the training or contracts and the category of the retardate determine the types of activities to be carried out and the specific arrangement of the area. A large unobstructed space should be provided for assembly or production line work but this may be divided into smaller units or work stations that might be required by the training or contract program. It is important that this space permit as much versatility in arrangements as possible. Separate areas for special work that requires isolation for cleanliness, noise control, concentration, or other reasons can be appropriately enclosed by partitions.

For a realistic environment, a work training area similar but perhaps smaller than the production area found in a sheltered workshop should be provided in a young adult training center. This would permit a trial period of training under work conditions in activities for which a potential had been indicated through prevocational testing or general assessment. As a part of the vocational training and to teach grooming habits, beauty and barber shops might be included in a facility of this type, although they would probably not be required in a sheltered workshop.

Areas for woodworking and furniture repair as well as a machine shop may be included. These should be enclosed to control dust, litter, and noise. They should permit easy observation by the supervisor. A separate finishing room with a paint spray booth and facilities for paint storage may be required. If it is provided, it must be in a fireproof enclosure and properly ventilated.

Some consideration should be given to future expansion of the training and work areas, if required, by placing them where building enlargement would cause a minimum dislocation.

Other applicable features mentioned under Specialized Training Area, p. 29 will also apply in this area.

Janitor Training Area

A janitorial facility, larger than would normally be needed, may be provided to instruct students in janitorial work. Adequate space and possibly several service sinks or one large receptor may be required to accommodate several students at a time. Provisions should also

be made for storage of supplies and equipment. Some facilities may provide an office for the custodian or person in charge of janitorial work and training.

Auditorium

Activities contemplated in the program may justify a separate auditorium for movies, entertainment, meetings, personnel training, and other functions. Provisions should be made for projection facilities, movie screen, and fixed or mobile stage. Anticipated attendance and types of programs and activities to be presented will determine the size of the auditorium. In the seating area, a minimum of 12 to 15 square feet per person is suggested. Acoustical treatment will be required for the auditorium.

Library

The provision of a library for students as well as for the staff and parents may be indicated. Some separation may be desirable between the area for students and that for staff and parents. Shelving and appropriate furnishings will be required as well as acoustical finishes. Space may be required for a librarian with desk and file. Book storage facilities and a workroom are also desirable.

Physical Therapy

A corrective gymnasium or one to accommodate organized athletic games with space for spectators might be required under certain service programs. Hydrotherapy and a swimming or therapy pool may also be contemplated and overhead equipment for lifting retardates into the pool and supporting them may be considered. Other phases of physical therapy would depend on the project program. These facilities would be similar in design to those for normal individuals with the necessary provisions for the physically handicapped. No effort is made here to provide design criteria.

When a corrective gymnasium for physical therapy is included, two separate areas are desirable: one for young adults and one for the primary and intermediate age groups. These would be designed primarily for medically oriented treatment of the physically handicapped and would contain manipulative and other exercise equipment to develop coordination and improve physical impairments.

Ancillary facilities such as dressing rooms, showers, and toilets will be required for the gym and for the swimming pool if one is provided.

Occupational Therapy

Occupational therapy may be under medical direction for treatment of disabilities, oriented toward training in activities of daily living and assessing and developing vocational potentials, or it may serve as recreational therapy in the retardate's adjustment to his environment. It may be included in other phases of education and training or a separate area may be required for this purpose. The types of activities will vary with the category of retardates involved and the objectives of the service program. When a separate area is required for occupational therapy it should be planned with ample space for the specific equipment to be used and for easy circulation by the retardates and staff. It may be similar to the arts and crafts room or an instruction room and would include a workcounter with sink and generous storage facilities for materials, supplies, and equipment. Tackboards and surfaces for displays and exhibits will also be required. A complete apartment or certain elements of a living unit may be included for training in activities of daily living. Desk and file space must be provided for the instructor but a separate adjoining office may be desired. Full observation and supervision, however, must be possible at all times.

Greenhouse

Another phase of an education and training program might be a greenhouse for training in gardening and horticulture. This would permit a learning experience in the care and growth of plants and provide an opportunity for a fuller appreciation of natural surroundings. If an enclosed space is not programed, an outdoor garden with inside storage for tools and supplies may suffice.

Recreational Facilities

Some of the facilities for recreational activities and athletics mentioned above may be incorporated in a day facility providing other services. They may also be included in a recreational center designed as a separate facility for day or evening use. Outdoor athletic fields should be considered. Whatever the arrangement for providing these services, other features such as a lounge or recreation room for dances, socialization, and entertainment, as well as a canteen for snacks and refreshments would be appropriate. This is particularly true when a separate center for recreation is contemplated. A gameroom for table tennis, shuffleboard, or similar activities, and a hobby shop are other possible elements. No special design criteria are required for these facilities except those indicated in a project program.

AREAS REQUIRED FOR LIVING UNITS

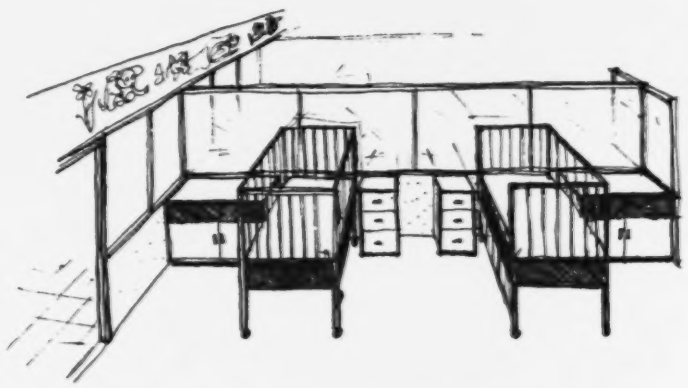
The areas described hereafter would be required only in living units. Other areas such as offices, dietary facilities, and lounge that are also included in other types of facilities are described elsewhere in this section.

Units for Nonambulatory Retardates

Bed areas in units for nonambulatory retardates should be arranged to permit close observation, prompt personal attention to patient needs, and convenient bedside nursing. To achieve more effective and efficient care and greater versatility in grouping among the various categories, a nursing or living unit should not exceed 12 beds.

An arrangement of the nursing unit into private rooms or bed areas accommodating not more than four beds is desirable when circumstances permit. This would provide privacy and reduce noise. However, if some patients are unable to signal their needs a different type of arrangement may be required so that the staff will be able to provide necessary observation and supervision when indicated. Partitions or dividers that would permit necessary observation may be used, but the privacy and personal dignity of the retardate must be considered.

A minimum allowance of 80 square feet per bed is required with not less than 5 feet between beds for maneuvering wheeled vehicles and for the convenience of the staff in carrying out nursing procedures. Suitable equipment should be provided, when needed, to screen beds for privacy. Bedside tables and facilities for personal effects are also needed. Handwashing facilities should be located in the nursing unit convenient for the staff.



Isolation facilities consisting of at least one room with a minimum of 100 square feet and a private toilet should be provided in a location that will permit easy observation from the nurses' station.

The nurses' station should be conveniently located for observation of the entire unit and centrally placed to reduce distances to a minimum. Control of those entering the unit is not as important as convenience for the staff. If possible, the nurses' station should be in viewing range of the activity room or dayroom. The usual furnishings in a nurses' station will be required including an area for medication that can be controlled. A sink and a nurses' toilet will be required in this area.

The bathing room with direct access to a water closet is an important area in the nonambulatory living unit because of its frequent use and the attention required from the staff in bathing this type patient. It should be located for convenient and easy access and sufficient room must be allowed for ease of movement around fixtures. When a bathing room includes

more than one fixture, each should be screened for privacy.

At least two bathing fixtures are required for 24 patients. Slab-type tubs are usually more convenient for bathing severely immobilized patients; however, conventional tubs may also be used. The fixtures should be elevated and accessible from three sides for convenience of the attendants. A spray attachment is required for each tub, and grab bars may be useful. Stall showers are generally not as convenient as tubs for nonambulatory patients, but if used, they should be large enough for wheelchairs (minimum, 4 feet square) and an attendant, and they should be equipped with a spray extension and grab bars. Space should be provided in the bathing room or adjoining dressing compartment for soiled and clean clothing.

Two water closets and 2 lavatories should be provided for 12 retardates. The water closets should have stall enclosures large enough for a wheelchair and an attendant, and grab rails should be installed. Toilet facilities and lavatories for general use may be separated from the bathing room but at least one water closet should be conveniently accessible to each bathing room. Provisions should be made for barbering and beauty treatment. These may be carried out in the bathing or washroom if space adjacent to lavatories is adequate. A shampoo sink may be installed to facilitate this service.

A *dayroom and activity area* should be provided in each living unit and a minimum allowance of 50 square feet per bed is recommended. Space must be adequate for maneuvering wheelchairs and other wheeled vehicles. This area may be arranged for diversified activities and training depending on the category of retardates, but appropriate equipment, training aids, and facilities must be provided. Physical and occupational therapies may also be carried out in the day room, but separate areas will permit better concentration by the therapist and resident and will provide a more effective setting. This room may also be used for dining by those who can leave their beds. Toilets may be desirable for this room. A partially shaded patio, court, or terrace should also be provided so that beds or wheelchairs can be conveniently rolled into the open for fresh air and sunlight.

Dietary facilities.—See Ancillary Areas.

A *visitors' room* will provide a place for families to visit with retardates in private and for counseling with parents. It should be convenient to, but removed from, the entry and waiting areas. A private toilet should be provided.

Linen storage is required convenient to the nursing areas because frequent bed changes may be necessary. Linen may be kept in a separate area or room, or may be stored on carts in a clean utility or supply room.

A *clean utility* or supply room is necessary for storing and handling clean items of supply and utensils needed for nursing service. This room may also accommodate a refrigerator for snacks, formulas, and the like.

A *soiled utility room* in a convenient location for nursing personnel is essential in the nursing unit. The room should have a clinical sink with bedpan washer, a counter sink or handwashing facilities, and workspace for handling and cleaning soiled items. Mechanical ventilation is essential in this area to control odors.

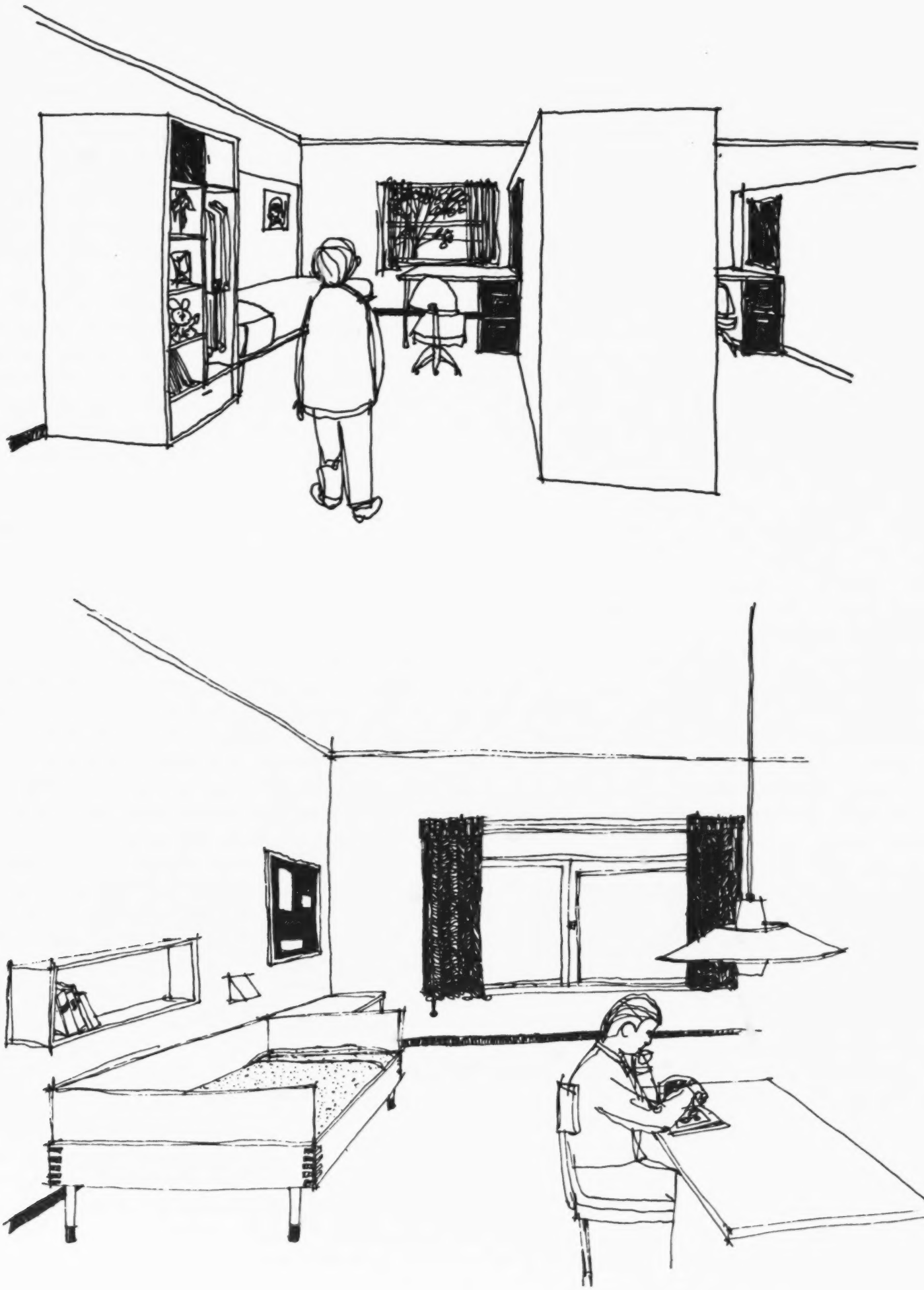
A *sterilizing room* will be required if sterilizing facilities are not provided elsewhere. A high pressure sterilizer and counter sink with workspace and storage for supplies are necessary for this function. This may serve more than one nursing unit.

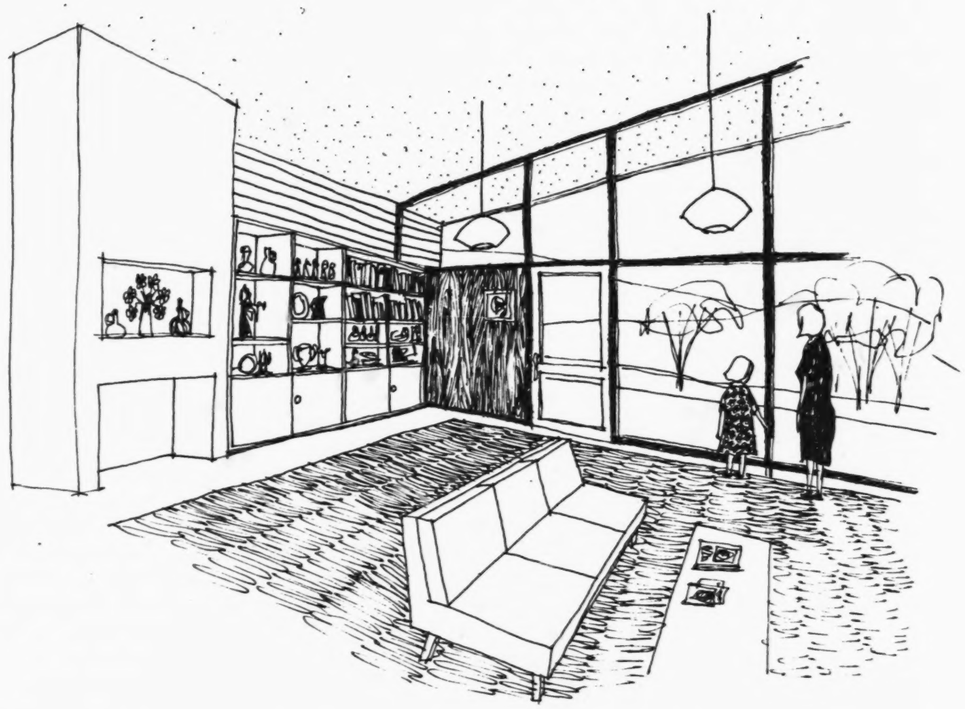
The *laundry room* will normally be used for small items in emergencies. Laundry policies and the extent of the work to be done will determine its size and equipment.

A *soiled linen room* will be necessary for holding soiled linen until it is sent to a central laundry in the facility or to a commercial laundry. This may serve a number of nursing units and should be located near the service entry of the building. Mechanical ventilation for this room is essential.

Units for Ambulatory Retardates

Bedrooms to accommodate four individuals, or less, are recommended to permit personal privacy in living units for ambulatory retardates. In some instances, however, two or three in a room may present social problems. Dormitory type accommodations are not desirable for those who are ambulatory and who do not require strict supervision. Individual clothes





closets and drawer space should be provided. The unit should include a single room with private toilet for isolation purposes. A minimum of 100 square feet, exclusive of closets, should be provided in single rooms and 80 square feet per bed in multiple bedrooms.

Bathing rooms and toilets should be designed appropriately for the type of retardate who will use them. For those who can bathe unattended, standard tubs or showers and conventional water closets and lavatories will be satisfactory. When assistance is required in bathing, elevated tubs accessible from three sides should be considered. Shower stalls should be at least 4 feet square to accommodate a wheelchair and an attendant when one is required. Each bathing fixture and water closet should be in a separate enclosure for privacy. Grab bars should be installed for those who are physically impaired and adequate space is required for easy maneuverability for dressing and for an attendant. A minimum of 2 bathing fixtures, 2 water closets, and 2 lavatories for each 10 residents should be provided.

Activity and dayrooms should be provided for use interchangeably for training, exercise, handicrafts, music, games, hobbies, social activities, or other purposes. They may be designed for joint use with other living units. The program of care and training will determine the extent and nature of these areas. Adequate storage facilities should be provided for recreational equipment, training aids, mockups, and similar equipment.

A *supervisor's bedroom* and bath or an apartment will be required in living units for the house parent or other supervisory person who has the major responsibility of care for a group of retardates.

A *visitors' room*, with private bath, is desirable and one room may serve several living units when these are combined in a single building.

A *living room*, with homelike furnishings, which may include a fireplace, should be included and may be combined with the dayroom.

Dietary facilities.—See Ancillary Areas.

A *sickroom* should be provided for isolating residents, particularly of multibedrooms, for medical or other purposes. It may also be used for medical examinations.

A *clothing storage space* will provide for storing off-season clothing.

A *clean linen storage area* should be located convenient to the bath and bed rooms.

A *soiled linen room* is desirable for holding soiled linen until it is sent to the laundry. It should be located near the service entry and must be adequately ventilated.

The *laundry room* will be used for washing small items in emergencies and for training some retardates in the use of laundry equipment. It should be equipped with a domestic-type washer and dryer, laundry trays, and an ironing board, and should include space for supplies.

A *mudroom* where children can remove outdoor clothing may be required at the entrance.

ANCILLARY AREAS

Additional areas may be required in some facilities to complete the services for the mentally retarded. Some of these areas are:

Lobby and Waiting

Each type of facility will need some kind of lobby and waiting area for use by visitors, parents, and children. It may be desirable to have a *children's waiting area* in a diagnostic and evaluation facility for use as a controlled play area to hold the attention of young retardates while they are waiting with their parents. It may also be used to observe parent-child relationships. This may be located so that it would be under the watchful eye of the receptionist, secretary, or someone on the staff. In some facilities the entry and waiting area may be combined as a lounge and may be provided with lounge-type furnishings to provide a more informal environment.

The lobby and waiting area should be open and spacious and should create a warm and inviting atmosphere. Space for a receptionist's desk may be required in this area if the secretarial office is not located conveniently for this purpose. If the waiting area is separate, it should be convenient to the lobby and information desk.

Public toilets, a public telephone, and a drinking fountain should be conveniently located. Bulletin boards and display cases may also be provided. In sheltered workshops, particularly, it is desirable to have adequate display space and facilities to acquaint the customers and public with the products of contract work.

Conference Room

A conference room will be required for evaluation and staff conferences and for group counseling in a diagnostic and evaluation facility. It should be sized to accommodate a conference table and chairs for approximately 16 to 20 persons and bookcases or shelves, and should be sound-controlled for privacy. A location adjoining or near the director's office and accessible to the public is desirable. This room may also be provided with movable partitions so that it can be separated into a conference area and a reading area or library.

A conference room or space for conferences will also be required in other facilities for the mentally retarded for individual and group counseling, staff meetings, and personnel training. In addition to conference table and chairs, provision should be made for bookshelves, a tackboard, chalkboard, and a cabinet or closets for coats and possibly for storing literature, a projector, and similar items. It may also be desirable to make provisions for serving coffee and light snacks.

Psychological Testing Areas

Although some psychological testing can be carried out in the psychologist's office, it is more desirable to have other areas especially planned for this purpose, particularly for young children, so that evaluation can be carried out without distraction.

An *observation playroom*, which may be used for group therapy and testing, should be provided in diagnostic and evaluation centers. This playroom should be located so that it can be observed from the psychologist's office and the conference room. One-way view windows

and an intercom will be required to permit audiovisual observation of retardates not only by the psychologist but also by conference room occupants. Acoustical treatment of this room is desirable. It should be furnished with appropriate toys, tables, and similar play equipment; ample storage will be needed for these items so they can be placed out of sight, when necessary, to avoid distraction. An adjoining outdoor play area can also be used for observation.

An *individual testing room* may also be provided in a diagnostic and evaluation center and in other types of facilities. It should be acoustically treated and located to permit one-way observation from the psychologist's office or another adjoining area. An intercom for audiocontact is also necessary. Base cabinets and ample space for storage of toys and testing equipment are required.

Medical Examining Areas

Medical examining areas should be provided in a diagnostic and evaluation facility for use by the staff physicians as well as consultants. These areas should be located convenient to the office of the medical director and medical staff, but may be separated from the activities and traffic.

One or more *medical examining rooms*, depending on the program and caseload, will be required. They should be adequate in size for an examining table and a small writing table or wall desk and a lavatory or sink. Some project programs may provide for a small anteroom or waiting space adjacent to the examining room for patients and for taking histories.

A small *laboratory* for specimen collection located adjacent to the examining rooms should be a part of the medical facilities. It should be equipped with a workcounter and sink and other necessary equipment and should have an adjoining or adjacent toilet. A small enclosure with spray extension or other facilities for bathing may be desirable for children who soil themselves. Some space for storage of supplies will also be required.

A small *utility room* is desirable for disposing of soiled waste and cleaning soiled utensils. It should have a clinical sink and a workcounter with sink and some limited storage space.

Some type of *clean linen storage* will also be required in the medical examining area.

First-Aid Room

For first-aid in case of accidents, seizures, and other emergencies, this room is an important element in most facilities for the mentally retarded. It may also be used to isolate some retardates for short periods of observation and rest and may be planned for use by a dental hygienist for routine dental care. Some physical examinations, immunizations, clinics, and similar medical and nursing care of a minor nature can be carried out here. A nurse and a physician should be available to staff this room when necessary. It should have a sink and small workcounter, examining table, a locker or cabinet for medications and supplies, a small desk and file cabinet, and several chairs. A small under-the-counter refrigerator may also be required. A cubicle enclosure would include as a minimum a crib or bed and bedside stand.

A connecting toilet is necessary and a full bathroom with tub or shower is desirable for emergencies when children soil themselves. This may also be used in nursing care and for training purposes when no other bath is available.

Resource and Instructional Aid Center

The resource and instructional aid center is necessary in education and training facilities and should be located convenient to the instruction areas. It should provide space for storage and checkout of portable teaching materials and equipment that may be used interchangeably in the different classes. These include films, filmstrips, books, manipulative equipment, science equipment, display boards and panels, records, tapes, portable television sets, mockups, puppet theater, and a wide variety of other specialized teaching aids. A central location and orderly storage will facilitate the use of these items and afford better maintenance. This area will also allow a place for repair and will give the instructors a place to prepare and develop some of the instructional aids which they may design and make for a particular purpose.

A separate acoustically treated room may be included for making specialized tape recordings and for reviewing tapes and films.

Dietary Facilities

Dietary areas may be centralized or decentralized depending on the size and type of the facility.

A *dining room* or cafeteria apart from the multipurpose room might be considered in certain types of facilities for the mentally retarded. This will avoid the necessity of frequently moving tables and chairs when they interfere with other activities. The dining area should be arranged for ease of serving both students and guests with either table- or self-service. Provisions for separating this space into smaller areas for different age groups or functions or to provide privacy for staff dining may be advantageous. The size of the room will depend on the number to be served as well as the handicapping conditions of the students, but a minimum of 20 square feet per person is recommended.

Dining facilities may not be required in living units for the nonambulatory if central dining is provided for staff and visitors. Retardates may be served at the bed or in the dayroom. In living units for ambulatory retardates, the dining room should adjoin the kitchen and may be located next to the living room so they can be combined for special occasions.

A *dietitian's office* or desk space may be required by some project programs. Nutrition is an important phase of therapy for some retardates.

A *kitchen* is highly desirable in most facilities because at least one well-prepared meal a day is an important phase of therapy and training for the mentally retarded. It may be provided adjoining the multipurpose room if no separate dining room is included. The usual equipment will be required, and it should be adequate to prepare food and serve the number of retardates expected for a meal under normal operation. Usually in a day facility, only the noon meal will be served except for special occasions and community meetings. In facilities that will be used for evening meetings and recreational activities, a pass-thru from the kitchen to the multipurpose room for use in serving light refreshments may be provided. Mobile serving carts or buffet food service may also be used.

Adequate refrigeration and food storage will be required depending on the purchasing and supply policies. A well-ventilated dishwashing room adequate in size and equipment to permit proper handling of clean and soiled dishes will be necessary. When used for training this room should permit observation. Handwashing facilities are also required. Space for trash, garbage storage, and can washing should also be provided at the service entrance.

Each living unit should have an appropriately equipped kitchen where meals can be prepared or served when food is dispatched from a central food preparation area. Between-meal nourishment and, when required, special types of food such as infant formulas and the like, may also be prepared here. In diagnostic and evaluation centers and other day facilities where kitchens are not provided, a snackbar or station may be desirable so that refreshments can be served to children and to older groups.

Kitchen and other dietary areas may require more generous space than under normal situations because students frequently may assist here as a training exercise. Some students may have physical handicaps that make it difficult to maneuver in a limited space.

Staff Lounge

Except for day facilities with a very limited staff, a staff lounge should be provided as a place to relax during rest periods. This lounge should be placed in a central location convenient for professional personnel and other staff members. It should be provided with easy chairs, tables, and other comfortable and attractive furniture. Staff toilets may be adjoining, and provisions for serving coffee could be included. Closets or storage area for coats and other items may be required.

Staff Living Quarters

Staff living quarters may be desirable in some residential facilities. In such cases a minimum of a private bedroom and bath should be provided.

Student Lockers

Lockers within the instruction rooms and training areas are recommended for the preschool and younger age groups for training purposes and supervision. They may also be desirable for certain categories of older students. Central locker rooms may be used in education and training facilities and in sheltered workshops when close supervision is not required. This will permit a broader experience in the use of this type of accommodation. Lockers should be designed appropriately for the type and age of those who will use them whether physically handicapped, easily confused, or with other problems.

If the number of retardates is not too large and if provision is not made elsewhere, the central locker room may be a convenient location to provide for teaching personal grooming such as shaving, combing hair, brushing teeth, and applying cosmetics.

Central locker rooms should be located as convenient as possible for all who will use them and may be adjacent or adjoining central toilets.

Employees' Lockers

Employees' locker rooms with toilets and showers may be desirable in some facilities in addition to staff lounge or other staff facilities. These may be necessary for certain staff members who wish to change clothes or uniforms. Employees' facilities should be placed as conveniently as possible to their duty stations.

Toilets

Toilets for public, staff, and retardates must be provided in all facilities. Public toilets should be located adjacent to, but preferably not opening into, the waiting areas. Private toilets for use by the staff may be near the staff offices. Under certain condtions, the project program may indicate private toilets for some of the staff offices or other staff areas.

In day facilities, toilets adjoining instruction rooms and training areas are recommended for retardates up to 8 or 10 years of age for training purposes and convenience and may be desirable beyond this age for those in the severe and moderate categories. Counter space that can be used for changing diapers is recommended in toilets for the very young and may be desirable in some women's restrooms. Space for a hamper for soiled items will also be necessary.

Stall enclosures are required for water closets to insure privacy. Curtains may be used in lieu of doors. Grab bars and other features for the physically handicapped should be provided where necessary for assistance and safety. Mirrors should be the proper height and of adequate size to permit use by all patients regardless of handicapping condition. These are essential to encourage good grooming habits.

If space is not provided in personal lockers for toothbrushes and other personal toilet articles, a cabinet or some type of rack for each individual should be provided in the toilet. Because of the importance of dental care and hygiene, dental lavatories may be considered in certain instances.

Separate toilets for each sex may not be required for the very young children.

Storage

A greater than normal amount of storage space must be provided in any facility for the mentally retarded in view of the wide variety of materials and equipment required in an instructional and training program. Bulky items will be required, particularly in the work area and multipurpose room, and proper storage facilities will permit a more orderly and safer use of space. Because of the nature of its program, the sheltered workshop requires a large receiving, storage, and shipping area located near the service entrance.

Other Features

Other elements such as central record files and medical records office and file rooms, duplicating and mail rooms, storage and supply rooms, janitor and housekeeping facilities, and similar areas will be necessary and should be indicated in the project program. These should be adequately planned and conveniently located for efficient use by the staff. They may be similar to conventional facilities but it should be remembered that more space may be required because of the training aspects and handicapping conditions of many who may use them.

BASIC PLANNING CONSIDERATIONS

The design of facilities for the mentally retarded should approximate as closely as possible what is desirable for the normal individual. If there is any significant difference in design for the mentally retarded, it might well be a greater emphasis on creating stimuli conducive to their growth and development in the physical environment. In addition to the specific areas and functions previously described, certain basic aspects of planning facilities for the mentally retarded include:

1. The site location should be free from dangerous traffic conditions, distracting environment, and other objectionable exterior surroundings. It should permit easy access for those using and visiting the facility and be convenient to community resources.

2. The size of the site should not restrict attractive landscaping and effective use of outdoor areas for play and relaxation. Well-planned space on the exterior as well as the interior is important in the design of facilities for the mentally retarded. The size of the site should also contemplate future expansion.

3. Driveways and parking space should be designed and arranged to eliminate hazards to the mentally retarded. Ample parking space should be provided for staff and visitors. Provisions should be made for safety and ease in loading and unloading schoolbuses and other vehicles. A covered entrance area for this purpose is desirable and surfaces which are slippery under foot when wet should be avoided.

4. Interior planning should be spacious, warm, and cheerful and should permit versatility in the use of space. The architectural character should be intimate in scale and stimulating and and inviting in its appeal.

5. Features creating barriers to the physically handicapped are outlined in the American Standards Association Publication, A117.1–1961, *American Standards Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped.** This should be used as a guide for minimum requirements for eliminating architectural barriers in facilities for the mentally retarded.

6. An 8-foot minimum width is recommended in corridors used by retardates.

7. Doors serving retardates and providing access to training and activity areas should be a minimum of 3 feet 8 inches in width to permit freedom of movement and easy passage of equipment. Double-acting or quick-action self-closing doors are hazardous. Doors, jambs, and exterior corners should be protected from damage by wheeled toys, vehicles, and equipment.

8. Exterior windows should provide adequate light as well as a good view of the outside for visual stimulation. Consideration must be given, however, to proper orientation and controls to avoid excessive exposure or objectionable distraction. Some protection from direct sunlight may also be desirable. Such features as treated or obscure glass, blinds, screen walls, exterior louvers, or overhangs might be used. Window-sill heights in areas for small children should be below eye level. Open-vent sections of the window should not create a hazard. One-way glass is required where observation windows are indicated, and where these are considered distracting to those being observed, indirect methods of viewing might be considered. Shatterproof or other safety glass may be required in areas for emotionally disturbed or hyperactive individuals or where there is excessive danger through breakage. Glazing in exit passageways must conform to building and fire safety codes.

9. Space should be ample. Some activities, because of added training requirements, may need more space than would otherwise be necessary. More assigned and general storage space is required in facilities for the mentally retarded than is usually required in other similar facilities.

BUILDING CONSTRUCTION AND FINISHES

Building construction must conform to applicable building and fire safety codes and should be sufficiently flexible to permit reasonable alterations and expansion to meet changing programs. Because the mentally retarded may not be as alert and responsive to danger as

*See item 5, Bibliography, p. 46.

normal individuals and may be less able to read or follow directions in an emergency, every design feature to assure safety is imperative. Buildings should be built of noncombustible material having a fire-resistive rating of not less than 1 hour.

Finishes should be appropriate to the function of the areas involved. Generally these may be of similiar types to those used in buildings for normal individuals but special attention should be given to the skillful use of color in finishes and furnishings. Careful consideration should be given to materials that will create a warm friendly atmosphere without incidental fire hazards.

In areas which may be subject to excessive abuse and soiling conditions, finishes that are durable and easily cleaned and maintained, but colorful and stimulating, should be considered. Wood finishes and trim, although they create warmth, are generally difficult to maintain. Finishes that would result in creating an institutional character, however, should be avoided. Resilient flooring offering maximum resistance to indentation and heavy abuse is recommended for most areas. Care should be exercised to prevent an irritating suface in those areas where crawlers or young children come in direct contact with the floor. Rough textured wall finishes should be avoided. Impervious materials are essential in wet areas and when incontinency is prevalent. Acoustical ceilings are recommended in the corridors, multipurpose rooms, and all activity areas as well as other locations where excessive noise is objectionable or the control of acoustics is desirable. However, in the selection of materials the tendency of some materials to absorb odors should be considered. Interior finishes of all ceilings, walls, and floors should be of noncombustible materials or of materials with low flamespread ratings. When special areas such as speech and hearing facilities are involved, appropriate treatment for their specialized function must be considered. In some areas wood floors over concrete may be advisable. This would be particularly true for the deaf or hard-of-hearing who learn through vibrations from this source. Variations in texture and materials may also assist those who are visually handicapped.

FIRE SAFETY

Because of the physical handicaps of some retardates that may prevent the rapid evacuation of the building in case of fire, special consideration should be given to exits and other design features. Exits from the building should be designed to discharge as near the grade level as possible to minimize the number of steps required.

One of the principal objectives of a good fire safety program is to confine any fire to its source of origin and to avoid the spread of fire and smoke. For this reason, rooms should be provided with a solid-type door and the ventilation system should be arranged to preclude the use of corridors as plenum chambers.

To minimize the need for evacuating retardates to the outdoors, particularly in inclement weather, it is desirable to subdivide the building into two or more compartments by the use of smoke barriers or horizontal exits.

ELECTRICAL SERVICE

The basic principles of electrical systems and equipment for a facility, including compliance with applicable codes, apply to facilities for the mentally retarded. Special features must be added where they are necessary for the training techniques adopted and for the safety of mentally retarded and physically handicapped children. More than ordinary care must be taken to provide safety from electrical shock or burns for handicapped children.

Except where specially arranged or designed electrical installations are indicated in certain areas, it is desirable that electrical devices and outlets be of a standard, or conventional type so that these facilities will be comparable to those in homes where some retardates may return to live.

In training areas, particularly in shops where power tools are used, it is recommended that circuits to outlets and equipment be provided with dual controls so arranged that one control switch is convenient for the instructor to deenergize the circuits when a hazard exists or appears to be developing through misuse of equipment.

Receptacles are available with specially designed safety features to minimize the possibility of retardates inserting foreign objectives in the receptacle, thereby contacting a live conductor. In some areas it may be desirable that receptacles and control switches be completely inaccessible to retardates. Where appropriate, lighting fixtures should also be selected with emphasis on safety and resistance to breakage and abuse.

Where flammable vapors may be present, such as in and around paint spray booths, explosion-proof wiring and equipment are required.

Wiring for all electrical systems, including that for electric power distribution, intercommunication, public address, radio, and television should be in metal raceways installed so as to protect retardates against shock or burns due to their inadvertent actions, as well as to protect the system's wiring.

Telephones should be provided for training retardates in their use.

Public address and intercommunication systems are recommended for personnel training and audio observation of retardates particularly in soundproof rooms equipped with one-way vision panels. Controls to initiate interstaff emergency calls for assistance should be provided at strategic locations. A closed-circuit television system is desirable for remote observation of retardates and for personnel training.

If electroencephalographic facilities are to be provided, a study should be made to determine whether electromagnetic shielding should be provided to minimize extraneous electrical interferences.

The lighting levels and effects of color and reflectances of interior finishes should be considered. It is important to create a visual environment that is cheerful, pleasant, and stimulating. Lighting levels recommended for various areas in facilities for the mentally retarded are listed in table 8.

Fire alarm systems and emergency lighting of exitways are required.

Elevators are essential in multistory buildings for the mentally retarded where physically handicapped or nonambulatory retardates are housed or required to use any floor other than at ground level. Elevators are recommended in all multistory buildings to facilitate service functions and for transportation of occupants. The number will depend on the occupancy of the upper floors and the cab should be large enough to accommodate wheelchairs, service equipment, and when required, beds and stretchers.

If expansion of facilities or alteration of spaces are contemplated within the foreseeable future, space capacity of the electrical service facilities, space for switching equipment, and spare conduits are suggested.

MECHANICAL SYSTEMS AND EQUIPMENT

The designer of the mechanical systems for facilities for the mentally retarded must review the functional program provided by the authorities who will administer the facility. This program will materially assist in acquainting him with many of the conditions that will have a direct bearing on his designs and the selection of adjunct equipment.

All systems and equipment should be installed in accordance with the requirements of applicable State and local codes. Design of the system should include space to facilitate repair and maintenance. Future expansion and modification of the systems to meet changing program needs should also be considered. To reduce the incidence of injury, exposed piping, valves, controls, and other appurtenances should be avoided wherever possible or protected from retardates in facilities for the mentally retarded.

The designer should be fully acquainted with the type of clientele to be served and the type of service to be provided. (The chart on p. 3 outlines the types and age groups of the retarded.) He should be aware of behavior patterns, physical incapacities relating to the mental condition, and a tendency toward incontinence. Those conditions and others will require care in design of systems and selection of equipment to prevent injury, facilitate training, and provide suitable temperature, humidity, and odor control.

It is not the purpose of this section to discuss services provided in facilities for the mentally retarded which are common to many other types of medical facilities and upon which much

Table 8. **LIGHTING LEVELS RECOMMENDED FOR AREAS IN FACILITIES FOR THE MENTALLY RETARDED**

Area	Foot-candles*
Auditorium:	
Assembly	15
Exhibition	30
Social activities	5
Corridor:	
General-nursing areas (daytime)	20
General-nursing areas (nighttime)	3
Examination and treatment room:	
General	50
Examining table	100
Exits, at floor	5
Kitchen and dining area	30
Laboratories:	
General	50
Close work	100
Locker rooms	20
Lobby:	
Day	50
Night	20
Lounges:	
General	10
Reading	30
Sheltered workshop:	
Benchwork (rough)	50
Benchwork (medium)	100
Benchwork (fine)	500
Painting	50
Paint storage	10
Materials handling:	
Load and unload platforms	20
Picking stock, classifying	30
Wrap, pack, and label	50
Medical records room	100
Nurses' station:	
General	70
Table, doctors make and review reports	70
Desk and charts	70
Medicine room counter	100
Offices:	
Bookkeeping and fine work	150
Regular officework	100
Reading and transcribing good quality paper	70
Intermittent reading, conference, etc	30
Information and telephone switchboard	30
Parking lot	1
Patient room (private and wards):	
General	10
Reading	30
Observation by nurse	2
Nightlight at floor (variable)	0.5 to 1.5
Examining light	100
Toilets	30
Therapy, physical:	
General	20
Exercise room	30
Treatment cubicles, local	30
Whirlpool	20
Lipreading	150
Therapy, occupational:	
Work area, general	30
Work tables or benches, ordinary	50
Work tables or benches, fine work	100
Toilets and washrooms	30
Utility room:	
General	20
Workcounter	50
Storage rooms and warehouses:	
Inactive	5
Active:	
Rough, bulky	10
Medium	20
Fine	50

*Minimum on task at any time.

information is available from other sources, but rather, to attempt to point out conditions peculiar to these facilities that may require specialized design.

Among the areas in the three types of facilities considered in this publication which require special consideration are: The medical examination, psychological investigation, and the speech and hearing screening units in the Diagnostic and Evaluation Facilities; the multipurpose, activity and instruction rooms in the Training and Care Facilities, and the bedrooms and isolation rooms of the Living Units.

Air Conditioning, Heating, and Ventilation

All types of facilities should be air conditioned for the benefit of both patients and personnel. Because the patients may be seated or permitted to crawl on the floors during training or observation periods in areas such as the

psychological investigation room and the activities and instruction rooms, the floors of these areas must be warmed. A ceiling radiant panel heating and cooling system supplemented by an air system for ventilation will in most instances prove satisfactory. Such a system eliminates the need for floor mounted heating or cooling units which could present a hazard to some types of patients. Radiant floor heating systems are not recommended because of the difficulty of maintaining a suitable floor temperature under varying outdoor conditions and because of the possibility of intensifying odor in case of incontinence. However, where exterior walls have large glazed areas some heating piping may be required in the floor immediately under such areas to counteract downdraft during the heating season.

Good ventilation and a suitable relative humidity may play a large part in maintaining the incidence of upper respiratory and other diseases at a minimum and are imperative for odor control. Ventilation in shop areas, paint spray booths, and the like will require special consideration.

Medical examination room.—To accommodate patients in varying stages of undress, a temperature of 80° F. and relative humidity of 40 percent with a ventilation rate of 2 air changes per hour of outdoor air are recommended.

Observation playroom.—A temperature of 75° F. and 40 percent relative humidity with warmed floors and a ventilation rate of 2 air changes per hour of outdoor air are recommended.

Speech and hearing examining area.—A temperature of 75° F. and 40 percent relative humidity with a ventilation rate of 2 air changes per hour of outdoor air are recommended. Special design and construction will be required to ensure an acceptable degree of quietness.

Activities and instruction rooms.—A temperature of 75° F. and 40 percent relative humidity are recommended. The ventilation rate will depend upon the occupancy but, where space allotments are in accordance with the recommendations of this publication, 2 to 3 air changes of outdoor air per hour should prove satisfactory.

Individual training booths.—A temperature of 75° F. and 40 percent relative humidity are recommended. Because these rooms will be closed when in use they should each have a supply air inlet and an exhaust air outlet and should be ventilated with outdoor air at a rate of 5 air changes per hour.

Living unit—bed areas.—A temperature of 75° F. and a relative humidity of 40 percent are recommended with a ventilation rate of 4 air changes of outdoor air per hour. In nonambulatory bed areas where odor control is a special problem, a ventilation rate of 6 air changes may be desirable.

Plumbing

In most instances, conventional plumbing fixtures will be used and their numbers and types have been enumerated for the various areas in the section on Elements of Physical Facilities. However, in certain training areas and housing units, junior-type fixtures may be required by the program. Such fixtures should be of a type best suited for their function and should be installed at a location easily accessible to patients to facilitate their use as training media. Lavatories and other handwashing fixtures located in examining, treatment, and dietary facilities for use by personnel should be equipped with wrist-, knee-, or foot-operated valves. To reduce the amount of exposed piping and to facilitate housekeeping, wall-mounted fixtures are recommended. Chair carriers in lieu of standard wall hangers should be considered for off-the-floor fixtures.

Domestic water temperatures to plumbing fixtures available to patients should not exceed 110° F.

Drinking fountains should be conveniently located and should be selected and installed to facilitate their use by retardates.

Floor drains should be discouraged. If they are required, provision should be made in the installation for maintaining the integrity of the drain trap and the prevention of back-siphonage through the supplementing water-line. Consideration should be given to large-

size drainage lines and adequate cleanouts for easy removal of foreign objects.

Sprinkler systems should be installed in high fire hazard areas and fire extinguishers should be placed for easy and quick access. Caution must be exercised in their placement to avoid safety hazards and mishandling by the retarded.

CONSTRUCTION COSTS

It is not within the scope of this document nor would it be possible to suggest realistic cost figures for the construction of facilities for the mentally retarded. There are many variables that would significantly influence building costs such as the wide differences in service programs, geographical location, prevailing conditions in the construction industry, and the type of construction.

In estimating costs it should be remembered that facilities for the mentally retarded do not require structures which are basically unique or different from those of a similar nature serving normal individuals. As a guide in estimating, therefore, the architect may call on his experience with buildings of various types comparable to those being designed for the mentally retarded, such as clinics, public schools, hospitals, rehabilitation centers, and the like. Each of the various type structures, however, may involve certain special features in the matter of additional space, finishes, and equipment which might not be required under normal conditions. The extent of such special requirements can be determined from the written program or during the design stages and, where included in the construction contract, these would be reflected in the cost estimate. Much of the equipment, particularly movable and specialized, may be purchased outside the contract. To avoid misunderstandings, it should be clearly understood between the owner and the architect which equipment items will and which will not be provided under the contract.

With these points in mind and a knowledge of local conditions, an experienced architect can adjust average costs and derive a realistic estimate for budget purposes. During the planning period, revisions will undoubtedly be necessary to maintain a proper relationship between anticipated costs and the available budget.

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